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Carpooling Liability?: Applying Tort Law Principles to the Joint Emergence of Self-Driving Automobiles and Transportation Network Companies

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**CARPOOLING LIABILITY?:
APPLYING TORT LAW PRINCIPLES
TO THE JOINT EMERGENCE OF SELF-DRIVING
AUTOMOBILES AND TRANSPORTATION
NETWORK COMPANIES**

*Jacob D. Walpert**

Self-driving automobiles have emerged as the future of vehicular travel, but this innovation is not developing in isolation. Simultaneously, the popularity of transportation network companies functioning as ride-hailing and ride-sharing services have altered traditional conceptions of personal transportation. Technology companies, conventional automakers, and start-up businesses each play significant roles in fundamentally transforming transportation methods.

These transformations raise numerous liability questions. Specifically, the emergence of self-driving vehicles and transportation network companies create uncertainty for the application of tort law’s negligence standard. This Note addresses technological innovations in vehicular transportation and their accompanying legislative and regulatory developments. Then, this Note discusses the implications for vicarious liability for vehicle owners, duties of care for vehicle operators, and corresponding insurance regimes. This Note also considers theoretical justifications for tort concepts including enterprise liability. Accounting for the inevitable uncertainty in applying tort law to new invention, this Note proposes a strict and vicarious liability regime with corresponding no-fault automobile insurance.

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INTRODUCTION

It is 2045, and New York residents have not personally driven automobiles in over a decade. Moreover, few people privately own automobiles. To commute to work in New York City, a suburban resident uses her smartphone to hail a vehicle from a ride-sharing service.¹ The vehicle that arrives to transport her is fully autonomous, without the components of traditional automobiles: no steering wheel, turn signal, pedals, or mirrors.² It is raining and dark in the early morning. During the ride, she catches up on messages while her vehicle maintains proper speed, obeys every traffic sign and signal, and otherwise drives like a reasonably prudent person.³

The self-driving vehicle then arrives in Manhattan and awaits a right turn. Simultaneously, a hurried pedestrian commuter crosses that same intersection but does so negligently—outside of the crosswalk—in an attempt to beat the light. The light turns green. Visibility is poor, and because of the pedestrian’s rush, the vehicle’s artificial intelligence system fails to read her movements properly and incorporate them into its complex

1. See Chris Martin & Joe Ryan, *Super-Cheap Driverless Cabs to Kick Mass Transit to the Curb*, BLOOMBERG: TECH. (Oct. 24, 2016, 7:01 PM), <https://www.bloomberg.com/news/articles/2016-10-24/super-cheap-driverless-taxis-may-kick-mass-transit-to-the-curb> [<https://perma.cc/A5KR-UWQK>].

2. See *infra* notes 37–38 and accompanying text.

3. See *infra* Part II.D (discussing the standard of care for drivers under traditional negligence principles).

driving calculations. The self-driving vehicle collides with the pedestrian, severely injuring him. Litigation ensues.⁴

The benefits of self-driving-automobile and ride-sharing technology are easy to conceptualize: increased safety,⁵ decreased energy costs, new uses for commuting time, and greater mobility for those unable to drive.⁶ However, as these advantages continue to evolve, so too will the costs, including diminished freedom and privacy and potential ambiguous liability.⁷ From a legal perspective, emerging automobile technology incorporates many interrelated issues in artificial intelligence, federal and state regulation, legislation, tort liability, and insurance.⁸ To date, state legislatures and the federal government have focused on regulatory issues concerning metrics for safety, licensing, and testing, but they have failed to address adequately questions of tort liability and insurance.⁹

Within the context of automobile accident liability, this Note considers the significance of the combined emergence of ride-sharing services and fully autonomous self-driving vehicles in reshaping the nature of private vehicle ownership and driver control. Accordingly, it aims to answer the following questions with far-reaching implications for courts and statehouses: What tort scheme is appropriate for this imminent phenomenon? Is modern tort jurisprudence sufficient to guide judges who will preside over accident litigation in the future? How should legislatures faced with the proliferation of self-driving vehicles and ride-sharing alter current law? The answers to these questions will be critical for automobile and technology industry stakeholders, as well as individual vehicle owners and drivers. Moreover, in considering socially optimal outcomes, liability concerns may present significant deterrents to technological development,

4. Under current law, New York courts would likely hold that the pedestrian was contributorily negligent but only a small percentage at fault for purposes of apportioning liability. See *Kane v. United States*, 189 F. Supp. 2d 40, 51–52 (S.D.N.Y. 2002). In *Kane*, a pedestrian commuter sued under the Federal Tort Claims Act when she was hit crossing a New York City street by a U.S. Postal Service truck. *Id.* at 44, 52. The court held that the truck driver failed to exercise reasonable care and was 90 percent at fault, while the pedestrian failed to exercise reasonable care and was 10 percent at fault. *Id.* at 53.

5. See Mike Ramsey, *Self-Driving Cars Could Cut Down on Accidents, Study Says*, WALL ST. J. (Mar. 5, 2015, 12:17 PM), <http://www.wsj.com/articles/self-driving-cars-could-cut-down-on-accidents-study-says-1425567905> (“[S]elf-driving vehicles could eliminate 90% of all auto accidents in the U.S., prevent up to \$190 billion in damages and health-costs annually and save thousands of lives . . .”) [<https://perma.cc/85G4-6CJP>].

6. See Robert P. Denaro et al., *Automated Vehicle Technology: Ten Research Areas to Follow*, TR NEWS, May–June 2014, at 19, 19.

7. See generally Jack Boeglin, Note, *The Costs of Self-Driving Cars: Reconciling Freedom and Privacy with Tort Liability in Autonomous Vehicle Regulation*, 17 YALE J.L. & TECH. 171 (2015) (providing a potential plan for regulators to reconcile freedom and privacy with tort liability in autonomous vehicle regulations).

8. For more on these issues, see *infra* note 274. This Note incorporates regulatory developments and newly enacted state laws but does not focus on regulatory challenges associated with self-driving automobiles and transportation networking companies. Moreover, distinct legal issues in artificial intelligence, see, e.g., Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513 (2015), are beyond the scope of this Note.

9. See *infra* Part I.C.

even when they provide safety benefits in comparison to traditional transportation methods.¹⁰

Self-driving technology is not an independent innovation; rather, it is uniquely intertwined with changes created by transportation network companies (TNCs).¹¹ However, there is a lack of scholarship concerning the interaction between these two interrelated transportation advancements.¹² Accordingly, this Note compares tort regimes to determine what kind of accident liability system best accounts for the changing nature of vehicle ownership and control implicated by the combined emergence of these two transportation developments. This Note provides a solution that considers three related concerns: (1) ideal societal outcomes reflecting the costs and benefits of emerging technology and sustained development, (2) careful application of existing liability regimes to innovation, and (3) feasible answers for courts and legislatures.¹³ From these concerns, this Note incorporates elements of enterprise liability to propose a strict and vicarious liability system with no-fault automobile insurance.¹⁴

This Note has three primary parts. Part I explains the emergence of self-driving automobiles and discusses current technological and legal developments. Further, Part I traces the technological evolution and suggests ways in which that evolution may continue together with TNCs to create a new transportation paradigm. Finally, Part I reviews legislative and regulatory developments in response to self-driving vehicles and TNCs. Part II explains tort law's application to automobile accidents and theories of recovery. Then, Part II identifies and compares various automobile accident liability regimes in the United States, incorporating analysis of motor vehicle statutes relating to vicarious liability for owners, driver negligence, and insurance law alternatives. Focusing on the potential consequences of new innovations for the application of tort law, Part III analyzes previous scholarship and commentary on the legal questions that the emergence of self-driving vehicles implicates. Lastly, Part III provides a resolution suggesting important aspects of tort jurisprudence and statutory insurance law that are best suited to self-driving automobiles with limited private ownership created by ride-sharing.

10. See Gary E. Marchant & Rachel A. Lindor, *The Coming Collision Between Autonomous Vehicles and the Liability System*, 52 SANTA CLARA L. REV. 1321, 1322 (2012) (assessing legal liability as a potentially limiting consideration for manufacturers of autonomous vehicles).

11. See *infra* Part I.A.2 (explaining transportation network companies and the increasing popularity of their services).

12. See *infra* Part III.A.

13. See *infra* Part III.B.

14. See *infra* Part III.B.

I. THE EMERGING PARADIGM:
PRESENT AND FUTURE VEHICULAR TRANSPORTATION

Over the past decade, self-driving technology has been gradually introduced to the roadways. This part provides the foundation of self-driving vehicle development necessary to understand reactions of transportation stakeholders, legal responses to technological innovation, and legal issues presented by these technologies. It then discusses modern developments, including the efforts of traditional automakers and technology enterprises and TNCs' creation of a transportation model that may lead to reductions in vehicle ownership. Finally, this part outlines the legislative and regulatory responses to address self-driving vehicles and legal issues that have arisen in the ride-sharing context.

A. *Origins of Self-Driving Vehicles*

Initially, the motivation to develop self-driving automobiles arose from national security interests.¹⁵ The goal was to create unmanned vehicles for the military.¹⁶ In 2004, the Pentagon's Defense Advanced Research Projects Agency (DARPA) challenged innovators to create self-driving vehicles capable of driving across the Mojave Desert.¹⁷ No competitor finished the 142-mile course; the top-scoring vehicle traveled less than 8 miles.¹⁸ Just three years later, DARPA conducted a competition with traffic signals and obstacles in a simulated city, and six out of the eleven teams successfully completed the test.¹⁹

The technology behind self-driving vehicles is highly advanced, but in its simplest form, self-driving vehicles use detailed maps and sensor information to determine their location and how to act.²⁰ Sensors detect objects around the vehicle and software classifies those objects based on movement patterns, sizes, and shapes.²¹ The sophisticated software uses predictive technology to project how objects around the vehicle will

15. See Press Release, U.S. Dep't of Def., The DARPA Grand Challenge: Ten Years Later (Mar. 13, 2014), http://www.dod.mil/pubs/foi/Reading_Room/DARPA/15-F-0059_DOC_22_NEWS_GC_10_YRS_LATER.pdf [<https://perma.cc/4BCD-P5A7>]. This initial motivation mirrors the original impetus for the Internet. See Barry M. Leiner et al., *Brief History of the Internet*, INTERNET SOC'Y 2 (Oct. 15, 2012), http://www.internetsociety.org/sites/default/files/Brief_History_of_the_Internet.pdf [<https://perma.cc/M58L-2B8Y>].

16. See Press Release, U.S. Dep't of Def., *supra* note 15. ("The longer-term aim was to accelerate development of [autonomous vehicles] that could ultimately substitute for men and women in hazardous military operations, such as supply convoys.")

17. See *id.*

18. See *id.* DARPA held another competition the next year, where five vehicles out of 195 teams completed the course. *Id.*

19. See *id.*

20. See generally *Technology*, WAYMO, <https://waymo.com/tech/> (last visited Feb. 16, 2017) [<https://perma.cc/P326-3XXD>].

21. See *id.*

move.²² Finally, the vehicle's software chooses its course of action based on its surroundings and relevant circumstances.²³

Using an early version of this technology, the winner of the second DARPA challenge was a Stanford University team led by Sebastian Thrun, a Google engineer and coinventor of the company's "Street View" mapping service.²⁴ Along with Google cofounder Larry Page, Thrun and his engineering team were early promoters of self-driving vehicles' potential to lower energy costs and make highways safer.²⁵ Accordingly, the technology industry became a key participant in self-driving development.²⁶

B. Modern Transportation Developments

A decade after the first DARPA challenge, transformative automobile technology is becoming mainstream.²⁷ Google was a pioneer in self-driving vehicle development, but the company used Toyota and Audi vehicles to test its autonomous technology.²⁸ However, recognizing the potential for industry upheaval as self-driving technology becomes the norm,²⁹ automakers have begun developing their own self-driving vehicles.³⁰

1. Traditional Automakers Compete with Silicon Valley

Toyota, the world's largest automaker, was slow to embrace self-driving technology but has now significantly invested in robotics and artificial

22. *See id.* For example, the software might predict that a pedestrian standing at a crosswalk is waiting to cross the street.

23. *See id.* Circumstances include, for example, road work, closed lanes, railroad-crossing indicators, and cyclists' hand signals. *Id.*

24. *See* John Markoff, *Google Cars Drive Themselves*, in *Traffic*, N.Y. TIMES (Oct. 9, 2010), <http://www.nytimes.com/2010/10/10/science/10google.html> [<https://perma.cc/RT8E-9SXV>].

25. *See id.* (noting "Dr. Thrun sounds like an evangelist when he speaks of robot cars" and the technology's potential to "reduce fuel consumption" and "reduce[] [the] possibility of accidents").

26. *See* Ujjayini Bose, Note, *The Black Box Solution to Autonomous Liability*, 92 WASH. U. L. REV. 1325, 1328 (2015) (describing how Google's participation in the DARPA challenges spurred its desire to develop self-driving vehicles for the public).

27. Ten years after the original challenge, DARPA noted that "defense and commercial applications [for self-driving vehicles] are proliferating. The rapid evolution of the technology [is] being driven by the information technology and automotive industries, academic and research institutions, the Defense Department . . . and federal and state transportation agencies." Press Release, U.S. Dep't of Def., *supra* note 15.

28. *See* Bose, *supra* note 26, at 1329.

29. *See* Yoko Kubota, *Behind Toyota's Late Shift into Self-Driving Cars*, WALL ST. J. (Jan. 12, 2016, 8:43 PM), <http://www.wsj.com/articles/behind-toyotas-late-shift-into-self-driving-cars-1452649436> (observing that "traditional car makers fear software makers will steal the auto's soul and profitability") [<https://perma.cc/F5YD-HWBV>].

30. *See* Roberto Baldwin, *Automakers Are Beating Silicon Valley at Its Own Game*, ENGADGET (Oct. 19, 2016), <https://www.engadget.com/2016/10/19/automakers-are-beating-silicon-valley-at-its-own-game/> (arguing that traditional automakers are surpassing the efforts of technology companies in producing self-driving vehicles) [<https://perma.cc/6ZPR-B34C>].

intelligence to make self-driving vehicles by 2020.³¹ Likewise, Volvo has announced plans to offer optional \$10,000 premium autopilot features that permit users to disengage from driving completely, but the vehicle's steering wheel will continue to allow physical driving.³² While not a traditional automaker, electric-car specialist Tesla offers limited autopilot in some vehicles through autosteer, lane-departure warning, and emergency braking safety features.³³ However, drivers are required to keep their hands on the wheel and prepare to take control when necessary.³⁴ In October 2016, Tesla announced that it will equip all vehicles with hardware that allows for eventual fully autonomous driving.³⁵

Other automakers are developing the technology in alternative ways. For example, Ford concentrates on taxi services, announcing its "intent to have a high-volume, fully autonomous . . . vehicle in commercial operation in 2021 in a ride-hailing or ride-sharing service."³⁶ Ford expects these vehicles to be entirely driverless, with no steering wheels or pedals.³⁷ Similarly, Google—initially focused on software—plans to build self-driving vehicles without steering wheels or pedals, designed to operate without human intervention.³⁸

31. See Kubota, *supra* note 29. Toyota's President Akio Toyoda declared that he "wouldn't trust an autonomously operating vehicle until one could beat a human-driven car around the Nürburgring racecourse in Germany." *Id.* Fellow Japanese automaker Nissan also hopes to offer fully autonomous vehicles by 2020. *Id.*

32. See Keith Naughton, *Volvo Plans to Offer Fully Self-Driving Car to Luxury Buyers*, BLOOMBERG: TECH. (Sept. 29, 2016, 12:35 PM), <http://www.bloomberg.com/news/articles/2016-09-29/volvo-plans-to-offer-fully-self-driving-car-to-luxury-buyers> [https://perma.cc/QWG3-88ZW].

33. See Kate Greene, *Life in Google's Self-Driving City*, CONSUMER REP. (Sept. 6, 2016), <http://www.consumerreports.org/cars-life-in-googles-self-driving-city/> [https://perma.cc/XN5R-8ZBM].

34. See Naughton, *supra* note 32. Tesla considers its self-driving capabilities to be level 2 autonomy, while others believe Tesla's autopilot is level 3. See Jordan Golson, *Volvo Autonomous Car Engineer Calls Tesla's Autopilot a 'Wannabe'*, VERGE (Apr. 27, 2016, 4:45 PM), <http://www.theverge.com/2016/4/27/11518826/volvo-tesla-autopilot-autonomous-self-driving-car> [https://perma.cc/LJ2R-FDWY]. For an explanation of autonomy levels, see *infra* notes 93–94 and accompanying text.

35. See Keith Laing, *Tesla Again Scrambles the Self-Driving Debate*, DET. NEWS (Oct. 27, 2016, 11:30 PM), <http://www.detroitnews.com/story/business/autos/2016/10/27/tesla-scrambles-self-driving-debate/92866300/> [https://perma.cc/BF66-VFLV].

36. Press Release, Ford Motor Co., Ford Targets Fully Autonomous Vehicle for Ride Sharing in 2021; Invests in New Tech Companies, Doubles Silicon Valley Team (Aug. 16, 2016), <https://media.ford.com/content/fordmedia/fna/us/en/news/2016/08/16/ford-targets-fully-autonomous-vehicle-for-ride-sharing-in-2021.html> [https://perma.cc/HB86-4MB5].

37. See Russ Mitchell, *Ford Reveals Self-Driving Cars; Politeness May Be a Problem*, L.A. TIMES (Sept. 13, 2016, 4:20 AM), <http://www.latimes.com/business/autos/la-fi-hy-ford-self-driving-20160913-snap-story.html> [https://perma.cc/BNX2-DGTC].

38. See Amy Levine, *Can I Be Held Negligent If My Self-Driving Car Causes an Accident?*, INS. J. (Apr. 20, 2015), <http://www.insurancejournal.com/magazines/features/2015/04/20/364411.htm> ("Unlike an airplane operating on autopilot mode, which still requires the pilots to account for unanticipated objects in the sky and regain control of the aircraft when necessary, the 'operator' of this model of self-driving car would not even have the opportunity to intervene in the driving of the vehicle.") [https://perma.cc/BJR6-5J2T]. Further, Google's parent company spun off its autonomous vehicle project to operate as a stand-alone business called Waymo, signaling confidence in the technology's ability to be

2. Participation of Transportation Network Companies

In Fall 2016, Uber, a TNC³⁹ and the world's most valuable start-up,⁴⁰ began deploying self-driving vehicles in Pittsburgh, Pennsylvania.⁴¹ Several months later, Uber expanded its pilot program to Arizona⁴² after encountering regulatory pushback when introducing the service in San Francisco, California.⁴³ Like Google, Uber wants to refine how self-driving vehicles behave in real surroundings, which include interactions between these vehicles and their passengers.⁴⁴ Drivers' natural behaviors and social cues are critical because they contribute to subtle driving culture, which varies by neighborhood, city, state, and region.⁴⁵ Ultimately, Uber is counting on fully autonomous vehicles to transform the economics of ride-hailing by eliminating its largest cost: drivers.⁴⁶

commercially viable rather than simply research-oriented. See Daisuke Wakabayashi, *Google Parent Company Spins Off Self-Driving Car Business*, N.Y. TIMES (Dec. 13, 2016), <http://www.nytimes.com/2016/12/13/technology/google-parent-company-spins-off-waymo-self-driving-car-business.html> [https://perma.cc/9XY2-38NB].

39. TNCs are variously referred to as ride-sharing, ride-hailing, or ride-sourcing services. A discussion of the specific distinctions between these terms and how they differ from traditional taxi services is outside the scope of this Note. TNCs are nonetheless highlighted because they reflect broader trends in vehicle ownership and thus have important implications for liability. As first defined for regulation by the California Public Utilities Commission, TNCs use online-enabled platforms to connect passengers with drivers using their personal, noncommercial vehicles. Press Release, Cal. Pub. Utils. Comm'n, CPUC Establishes Rules for Transportation Network Companies (Sept. 19, 2013), <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M077/K132/77132276.PDF> [https://perma.cc/WC4A-ZKVK]; see also Tomio Geron, *California Becomes First State to Regulate Ridesharing Services Lyft, Sidecar, UberX*, FORBES (Sept. 19, 2013, 3:40 PM), <http://www.forbes.com/sites/tomiogeron/2013/09/19/california-becomes-first-state-to-regulate-ridesharing-services-lyft-sidecar-uberx> [https://perma.cc/6GHZ-ZXG4].

40. See Alison Griswold, *Uber's Self-Driving Cars Are Already Getting into Scrapes on the Streets of Pittsburgh*, QUARTZ (Oct. 4, 2016), <http://qz.com/798092/a-self-driving-uber-car-went-the-wrong-way-on-a-one-way-street-in-pittsburgh/> (stating that Uber has a \$68 billion valuation) [https://perma.cc/5B79-PYDJ].

41. See Aarti Shahani, *Uber to Roll Out Self-Driving Cars in Pittsburgh*, NPR (Aug. 20, 2016), <https://ww2.kqed.org/news/2016/08/20/uber-to-roll-out-self-driving-cars-in-pittsburgh/> [https://perma.cc/M6QZ-DU8U]. Weather is one reason that Uber has rolled out its research in Pittsburgh; the city has four seasons, unlike the occasionally rainy Silicon Valley. See Signe Brewster, *Uber Starts Self-Driving Car Pickups in Pittsburgh*, TECHCRUNCH (Sept. 14, 2016), <https://techcrunch.com/2016/09/14/1386711/> [https://perma.cc/H9T9-PF2A]. It is also an older city, with an irregular grid, bridges, and many potholes. See *id.*

42. See Eric Newcomer & Ellen Huet, *Uber Ships Self-Driving Cars to Arizona After California Ban*, BLOOMBERG: TECH (Dec. 22, 2016, 4:02 PM), <https://www.bloomberg.com/news/articles/2016-12-22/uber-pulls-self-driving-cars-from-california-for-arizona> (“The California Department of Motor Vehicles banned Uber’s self-driving cars from San Francisco . . . just days after they first deployed. In response, Uber picked up and moved [to Arizona].”) [https://perma.cc/9BJT-5LUD].

43. See *id.*; see also Press Release, Uber, San Francisco, Your Self-Driving Uber Is Arriving Now (Dec. 14, 2016), <https://newsroom.uber.com/san-francisco-your-self-driving-uber-is-arriving-now/> [https://perma.cc/4M3U-KNQC].

44. See Brewster, *supra* note 41.

45. See Greene, *supra* note 33.

46. See Griswold, *supra* note 40. Uber lost over \$1.2 billion in the first half of 2016, mostly due to subsidies spent on drivers. See Eric Newcomer, *Uber Loses at Least \$1.2*

Uber envisions a world of transportation where its vehicles make the required complex driving maneuvers while transporting passengers without the need for drivers, thereby operating more efficiently.⁴⁷ Accordingly, the increased popularity and customer reliance on services provided by Uber and its competitors, as well as vehicle-sharing services like Zipcar, have become disruptive forces in the automotive industry at the same time as the emergence of self-driving technology.⁴⁸

As traditional automakers have begun to invest in self-driving vehicles, so too have they recognized that the technology-driven future of automobiles will involve transportation without car ownership.⁴⁹ Thus, Toyota has invested in Uber, and Volkswagen has invested in Gett, a competitor popular in Europe.⁵⁰ Additionally, BMW and Mercedes-Benz have started to develop their own ride services.⁵¹ Likewise, Lyft—Uber’s largest American competitor⁵²—plans to transport customers in self-driving vehicles within the next year through a partnership with General Motors.⁵³ Lyft pledges that more than half of rides offered through their service will be autonomous by 2021, but more significantly, the company proclaims that “[b]y 2025, private car ownership will all-but end in major U.S. cities” due to self-driving vehicles.⁵⁴

3. Vehicle Ownership Trends

Although the claim is ambitious,⁵⁵ the potential end to private vehicle ownership is reflected in various trends. According to a 2014 study, American households without a vehicle have increased nearly every year

Billion in First Half of 2016, BLOOMBERG: TECH (Aug. 25, 2016, 8:00 AM), <https://www.bloomberg.com/news/articles/2016-08-25/uber-loses-at-least-1-2-billion-in-first-half-of-2016> [https://perma.cc/UA2T-3AGK].

47. See Mike Isaac, *Uber Bets on Artificial Intelligence with Acquisition and New Lab*, N.Y. TIMES (Dec. 5, 2016), <http://www.nytimes.com/2016/12/05/technology/uber-bets-on-artificial-intelligence-with-acquisition-and-new-lab.html> (reporting on Uber’s acquisition of an artificial intelligence company and the importance that technology companies place on artificial intelligence) [https://perma.cc/CK5V-KUX6].

48. See Mike Isaac & Neal E. Boudette, *Automakers Befriend Start-Ups Like Uber, Girding Against a Changing Car Culture*, N.Y. TIMES (May 24, 2016), <http://www.nytimes.com/2016/05/25/technology/uber-gett-ridesharing-toyota-vw.html> [https://perma.cc/B537-6G7R].

49. See *id.*

50. See *id.*

51. See *id.*

52. David Gelles & Mike Isaac, *Lyft Is Said to Seek a Buyer, Without Success*, N.Y. TIMES (Aug. 19, 2016), <https://www.nytimes.com/2016/08/20/technology/lyft-is-said-to-fail-to-find-a-buyer-despite-talks-with-several-companies.html> [https://perma.cc/LS6N-7DDR].

53. See Isaac & Boudette, *supra* note 48 (noting that General Motors invested \$500 million in Lyft).

54. See John Zimmer, *The Third Transportation Revolution*, MEDIUM (Sept. 18, 2016), <https://medium.com/@johnzimmer/the-third-transportation-revolution-27860f05fa91#.ibu0c5dwh> [https://perma.cc/2E5J-8VDQ].

55. See Victor Luckerson, *Lyft’s 10-Year Driverless Car Plan Is a Pipe Dream*, RINGER (Sept. 26, 2016), <https://theringer.com/lyfts-10-year-driverless-car-plan-is-a-pipe-dream-6d6e87f7c375#.oh7hmmgmt> [https://perma.cc/KD63-6RGC].

since 2007.⁵⁶ Moreover, the proportion of households without a vehicle increased in twenty-one of the thirty largest American cities.⁵⁷ In a subsequent study, the same institute found a continuous decrease in the percentage of individuals under age forty-five with a license.⁵⁸ Specifically, about 87 percent of nineteen-year-olds in 1983 held licenses, but that figure dropped to 69 percent thirty years later.⁵⁹

As the percentage of new vehicles sold to eighteen- to thirty-four-year-olds has dropped significantly, many argue that a slowed economy dissuades younger people from investing in a car.⁶⁰ However, evidence shows that millennials' "interests and priorities have been redefined in the last two decades, pushing cars to the side while must-have personal technology products take up the fast lane."⁶¹ Accordingly, the combination of younger generations' distaste for automobile ownership, decreased desire for licenses, preference for personal technology products, and widespread use of smartphone applications have created a unique opportunity for TNCs and self-driving vehicles.⁶²

56. See *Hitchin' a Ride: Fewer Americans Have Their Own Vehicle*, U. MICH. (Jan. 23, 2014), <http://ns.umich.edu/new/releases/21923-hitchin-a-ride-fewer-americans-have-their-own-vehicle> [https://perma.cc/Z7VJ-2N5Q].

57. See *id.*

58. See *More Americans of All Ages Spurning Driver's Licenses*, U. MICH. (Jan. 20, 2016), <http://www.umtri.umich.edu/what-were-doing/news/more-americans-all-ages-spurning-drivers-licenses> [https://perma.cc/LZ7T-CBBG].

59. See *id.* ("Other teen driving groups have also declined: 18-year-olds fell from 80 percent in 1983 to 60 percent in 2014, 17-year-olds decreased from 69 percent to 45 percent, and 16-year-olds plummeted from 46 percent to 24 percent.").

60. See Darren Ross, *Millennials Don't Care About Owning Cars, and Car Makers Can't Figure Out Why*, FAST COMPANY (Mar. 26, 2014, 10:16 AM), <https://www.fastcoexist.com/3027876/millennials-dont-care-about-owning-cars-and-car-makers-cant-figure-out-why> [https://perma.cc/3R9B-M4XZ].

61. *Id.*

62. This generational shift may include future products like Lynk & Co's vehicle, a "smartphone on wheels" that is a "fully-connected digital car built for young people who live in megacities." See Máté Petrány, *Lynk & Co Wants to Build a Car You'll Love as Much as Your Smartphone*, ROAD & TRACK (Oct. 21, 2016), <http://www.roadandtrack.com/new-cars/future-cars/a31258/lynk-co-first-chinese-car-in-america-usa/> [https://perma.cc/T7V9-9ZHB]. The vehicle "is designed to perform a remarkable trick: Whenever you won't be driving it for a while, you can [share it]. Your vehicle's availability is posted on a social network For someone to borrow your car, they simply reserve it, walk up, and unlock the vehicle with their phone using a Lynk & Co app." See Mark Wilson, *Hate Owning a Car?: This New SUV Is Designed to Be Shared*, FAST COMPANY (Oct. 19, 2016, 6:50 PM), <https://www.fastcodesign.com/3064786/hate-owning-a-car-this-new-suv-is-designed-to-be-shared> [https://perma.cc/CCT7-7TC6]; see also Markoff, *supra* note 24 (discussing the prospect that self-driving technology will "allow the cars to be summoned electronically, so that people could share them."). Moreover, "[f]ewer cars would then be needed, reducing the need for parking spaces, which consume valuable land." *Id.* Thus, self-driving vehicle lessees and owners will be able to rent their cars to others when they are not using them, providing vehicles without traditional ownership burdens.

C. Legislative and Regulatory Responses

In an industry with laws that date back to an era of horse-drawn carriages,⁶³ developments in engineering and technology are part of a broader automotive ecosystem that requires detailed legislative and regulatory schemes.

As these transformational shifts alter personal transportation, inevitably, accidents occur that affect human lives. In fact, in February 2016, Google's self-driving project caused its first accident.⁶⁴ Although Google's vehicles had previously been involved in collisions, this incident was the first time the company's software was likely at fault.⁶⁵ Likewise, TNCs have been involved in fatal accidents resulting in greater focus on liability and insurance coverage issues.⁶⁶ Accordingly, states and the federal government have sought to address issues arising both from self-driving vehicles and TNCs. Legislative and regulatory developments are relevant to this Note because they implicate critical details about the variation among states in tort liability and insurance plans.

1. Self-Driving Vehicles

As a result of lobbying by Google,⁶⁷ in 2012, Nevada became the first state to pass legislation and approve an autonomous vehicle license, thus

63. See John Markoff, *Google Lobbies Nevada to Allow Self-Driving Cars*, N.Y. TIMES (May 10, 2011), <http://www.nytimes.com/2011/05/11/science/11drive.html> [https://perma.cc/85KG-UZJD].

64. See Alex Davies, *Google's Self-Driving Car Caused Its First Crash*, WIRED (Feb. 29, 2016, 2:04 PM), <https://www.wired.com/2016/02/googles-self-driving-car-may-caused-first-crash/> (describing that the crash occurred when the self-driving vehicle changed lanes to get around a storm drain's sand-bagged perimeter and moved into the path of an approaching bus) [https://perma.cc/D3M3-DL9Q].

65. See *id.* Other collisions occurred when human drivers rear-end self-driving vehicles. Over the first six years of Google's project, the company's vehicles were involved in fourteen minor accidents, including eleven rear-enders. See Charlie Osbourne, *Google's Autonomous Car Injuries: Blame the Human*, ZDNET (July 17, 2015, 7:27 PM), <http://www.zdnet.com/article/googles-autonomous-car-injuries-blame-the-human/> [https://perma.cc/G5QW-KFZ9]. Later in 2016, a Tesla was involved in the first fatal accident involving a self-driving vehicle, with the crash serving as a sign that the technology might not be as advanced as proponents have suggested. See Bill Vlasic & Neal E. Boudette, *Self-Driving Tesla Was Involved in Fatal Crash, U.S. Says*, N.Y. TIMES (June 30, 2016), <http://www.nytimes.com/2016/07/01/business/self-driving-tesla-fatal-crash-investigation.html> [https://perma.cc/K5E6-NTWS]. The fatality occurred when a tractor-trailer made a left turn in front of a Tesla, and the vehicle failed to apply the brakes despite being in autopilot. *Id.* Tesla asserted that neither autopilot nor the driver noticed the tractor-trailer's white side against a bright sky, so brakes were not applied. *Id.*

66. See R.J. Lehmann, *Blurred Lines: Insurance Challenges in the Ride-Sharing Market*, R STREET INST. 5 (Oct. 2014), <http://www.rstreet.org/wp-content/uploads/2014/09/RSTREET28.pdf> [https://perma.cc/F4NK-TQ36]. In 2014, Uber was sued by the father of a six-year-old girl who died after being hit by an Uber driver, but Uber stated that the driver was not providing services at the time. The lawsuit challenged TNCs' "assertion that they are not liable for accidents experienced by [their] drivers." *Id.*

67. See Markoff, *supra* note 63. Although Google's reason for focusing its initial lobbying efforts on Nevada is unclear, it may be due to the state's lower insurance costs. See Bose, *supra* note 26, at 1330 n.36.

allowing their legal operation on public roads.⁶⁸ Several other jurisdictions followed in the same year with legislation, including California,⁶⁹ the District of Columbia,⁷⁰ and Florida.⁷¹ To date, thirty-four states have considered legislation related to autonomous vehicles, with nine states and the Washington, D.C., passing such legislation.⁷²

State legislation continues to expand. Florida's 2012 statute declared a legislative intent to encourage the safe development, testing, and operation of autonomous vehicle technology;⁷³ the state's 2016 legislation not only expands the permissible operation of autonomous vehicles, but it eliminates testing requirements and, significantly, the formerly mandated presence of a driver.⁷⁴

Pursuant to statutory authority, some state agencies have promulgated regulations relating to self-driving vehicles.⁷⁵ Nevada's Department of Motor Vehicles defines "autonomous vehicle,"⁷⁶ establishes a distinct driver's license endorsement,⁷⁷ and specifies operation, safety, testing, and certification requirements.⁷⁸ Other states' regulations have defined autonomous vehicles using similar language.⁷⁹ Likewise, regulations comparably define operators or drivers of autonomous vehicles, either as an individual who "causes the autonomous vehicle to engage"⁸⁰ or the "human operator" of the autonomous vehicle.⁸¹ At the same time, state regulations

68. See Bose, *supra* note 26, at 1330; Mary Slosson, *Google Gets First Self-Driven Car License in Nevada*, REUTERS (May 8, 2012, 6:39 AM), <http://www.reuters.com/article/uk-usa-nevada-google-idUSLNE84701320120508> [<https://perma.cc/8RBG-J4JS>].

69. See CAL. VEH. CODE § 38750 (West 2012) (amended 2015).

70. See D.C. CODE § 50-2352 (Supp. 2014). Washington D.C.'s initial statutory enactment provides an example of the basic nature of early autonomous vehicle legislation. It states:

An autonomous vehicle may operate on a public roadway; provided, that the vehicle: (1) Has a manual override feature that allows a driver to assume control of the autonomous vehicle at any time; (2) Has a driver seated in the control seat of the vehicle while in operation who is prepared to take control of the autonomous vehicle at any moment; and (3) Is capable of operating in compliance with the District's applicable traffic laws and motor vehicle laws and traffic control devices.

Id.

71. See FLA. STAT. § 319.145 (2012) (amended 2016).

72. See *Autonomous/Self-Driving Vehicles Legislation*, NAT'L CONF. ST. LEGISLATURES (Dec. 12, 2016), <http://www.ncsl.org/research/transportation/autonomous-vehicles-legislation.aspx> [<https://perma.cc/E2QH-DGF7>].

73. See *id.*

74. See *id.*

75. See *id.*

76. NEV. ADMIN. CODE § 482A.010 (2016) (interpreting the term "autonomous vehicle" to exclude a vehicle enabled with a safety or driver assistance system "unless the vehicle is also enabled with artificial intelligence and technology that allows the vehicle to carry out all the mechanical operations of driving without the active control or continuous monitoring of a natural person.").

77. *Id.* § 482A.040.

78. See generally *id.* §§ 482A.110–.180.

79. See Bose, *supra* note 26, at 1331.

80. NEV. ADMIN. CODE § 482A.020.

81. D.C. CODE § 50-2351 (Supp. 2014).

vary in several significant ways, including requirements for licensing, insurance, and safety features.⁸²

The federal government has also addressed the rise of self-driving vehicles. In 2013, the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) released plans for research on safety-related issues and recommendations to states for testing, licensing, and regulating automated vehicles.⁸³ Specifically, NHTSA's statement addressed (1) an explanation of areas of vehicle innovation and types of automation that offer potential for reductions in crashes and deaths, (2) a summary of NHTSA research to help ensure that all safety issues related to vehicle automation are explored, and (3) recommendations to states that have authorized operation of self-driving vehicles on how to ensure safe operation as these new concepts are being tested.⁸⁴

In early 2016, the NHTSA noted the "rapid development of emerging automation technologies means that partially and fully automated vehicles are nearing the point at which widespread deployment is feasible."⁸⁵ Subsequently, in September 2016, the Department of Transportation released its federal policy for automated vehicles.⁸⁶ A recognized expert on self-driving vehicle legality suggested the policy's significance:

[T]his guidance will be the starting point for more thoughtful legislative discussions—not only at the state level but also, for the first time, at the federal level. . . . This soft guidance could become even more influential if states incorporate it in legislation, if [NHTSA] considers it in the course of exemption or enforcement decisions, or if courts look to it to understand how a reasonable developer should act.⁸⁷

The updated federal policy addresses important aspects of self-driving vehicles, including traffic laws that vary by state⁸⁸ and gaps in current regulations for tort liability and insurance.⁸⁹ According to the policy, because states are responsible for determining liability and insurance rules,

82. See Bose, *supra* note 26, at 1331.

83. See generally Policy Statement, Nat'l Highway Traffic Safety Admin., Preliminary Statement of Policy Concerning Automated Vehicles (2013).

84. See *id.* at 2.

85. Policy Statement, Nat'l Highway Traffic Safety Admin., 2016 Update to "Preliminary Statement of Policy Concerning Automated Vehicles" 1 (2016).

86. See generally NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., U.S. DEP'T OF TRANSP., FEDERAL AUTOMATED VEHICLES POLICY: ACCELERATING THE NEXT REVOLUTION IN ROADWAY SAFETY (2016).

87. Bryant Walker Smith, *US Department of Transportation's Automated Driving Guidance*, CTR. INTERNET & SOC'Y (Sept. 19, 2016, 5:00 PM), <http://cyberlaw.stanford.edu/blog/2016/09/us-department-transportations-automated-driving-guidance> [<https://perma.cc/M2HP-3Y2X>]. Smith also addressed the NHTSA policy's enforceability: "The model state policy does not bind states, and some may well decide not to follow it. The performance guidance likewise does not bind developers of automated driving systems, but I would expect few of these developers to deviate from it." *Id.*

88. See NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *supra* note 86, at 25–26. Self-driving vehicles should be able to follow applicable laws, including "speed limits, traffic control devices, one-way streets, access restrictions (e.g., crosswalks, bike lanes), U-turns, right-on-red situations, metering ramps, and other traffic circumstances and situations." *Id.*

89. See *id.* at 44.

they should consider how to allocate liability among owners, operators, passengers, and manufacturers when a crash occurs.⁹⁰ Additionally, as these issues involve human lives, the policy warns that laws allocating liability could have significant effects on consumer acceptance, deployment rates, and insurance costs.⁹¹

Finally, federal policy adopts SAE International's⁹² standardized definitions for degrees of automation, which places self-driving vehicles on a 0–5 scale.⁹³ Levels 0–2 and 3–5 are distinguished based on whether the human operator or the automated system is primarily responsible for monitoring the driving environment, with the term “highly automated vehicle” representing level 3–5 vehicles.⁹⁴ Degrees of automation are relevant in determining the tort duties that individuals who “operate” self-driving vehicles owe.⁹⁵

2. Transportation Network Companies

TNCs have disrupted traditional transportation offerings by providing services through application-based platforms, where customers use smartphones to request rides.⁹⁶ The applications function by connecting customers with nearby drivers using GPS technology.⁹⁷ Generally, drivers do not have commercial licenses and drive privately owned vehicles with personal automobile insurance.⁹⁸ This arrangement has raised issues for ride-sharing service regulations, including the extent to which TNCs can be held liable for claims including unfair competition, breach of contract, and drivers' tortious behavior.⁹⁹ Specifically, much of the regulatory

90. *See id.* at 45; *see also infra* Part II.

91. *See* NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *supra* note 86, at 46.

92. SAE International is an association of engineers and technical experts in aerospace, automotive, and commercial-vehicle industries. *See* SAE INT'L, <http://www.sae.org/about/> [<https://perma.cc/5UR6-2E2F>]. To simplify communication and facilitate collaboration within technical and policy domains, the organization issued common terminology for automated driving. *See* NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *supra* note 86, at 103 n.4.

93. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *supra* note 86, at 9–10. At level 0, human drivers perform all driving tasks. *Id.* At level 1, a vehicle's automated system sometimes assists the human driver with some driving tasks. *Id.* At level 2, a vehicle's automated system can conduct some driving tasks, while the human driver monitors the environment and performs the remaining tasks. *Id.* At level 3, an automated system may sometimes conduct parts of the driving task while also monitoring the driving environment, but the human driver must be ready to take back control when requested by the system. *Id.* At level 4, an automated system can conduct the driving task and monitor the driving environment, and the human need not take back control, but automation can operate only in certain conditions. *Id.* Finally, at level 5, the automated system can perform all driving tasks, under the same conditions as a human driver. *Id.*

94. *Id.* at 10.

95. *See infra* Part II.C.

96. *See* Emily Dobson, Note, *Transportation Network Companies: How Should South Carolina Adjust Its Regulatory Framework?*, 66 S.C. L. REV. 701, 703 (2015) (examining the insurance coverage Uber provides to consider effective regulatory approaches for TNCs).

97. *See id.*

98. *See id.*

99. *See generally* Deborah F. Buckman, Annotation, *Liability and Regulation of Ride-Sharing Services Using Social Media*, 6 A.L.R.7th Art. 1 (2015).

complexity surrounding TNCs involves questions of insurance coverage¹⁰⁰ and worker classification.¹⁰¹ Although TNC regulation involves many concerns, most germane to this Note is insurance coverage.¹⁰²

The insurance industry supports establishing rules for TNCs to provide clarity regarding what insurance coverage is provided, when it is provided (and by whom) as well as disclosures for drivers and passengers.¹⁰³ Over forty states have implemented legislation for TNCs.¹⁰⁴ California and Colorado have adopted two of the most detailed statutes to address TNCs.¹⁰⁵ California's legislature has established specific liability coverage and disclosure requirements.¹⁰⁶ The statute provides different coverage requirements based on two distinct time periods: (1) when drivers have accepted ride requests until the rides are complete and (2) when drivers are logged into the application but are in between rides and have not received ride requests.¹⁰⁷ TNCs are also required to disclose in writing to drivers the insurance coverage that the company will provide and to "advise a participating driver . . . that the driver's personal automobile insurance policy will not provide coverage because the driver uses a vehicle in connection with a transportation network company's online-enabled application or platform."¹⁰⁸ Additionally, instead of fitting TNCs under preexisting classifications, California's legislature created a new category of commercial carriers to address concerns distinctive to TNCs.¹⁰⁹ Similarly, Colorado's statute establishes specific time periods for TNC services,¹¹⁰ and it distinguishes between common carriers and TNCs by exempting the latter from requirements that accompany common carriers.¹¹¹

Additionally, TNC regulation often occurs at the municipal level. Some cities have embraced the operation of TNCs while still demanding that they

100. See, e.g., Dobson, *supra* note 96.

101. See, e.g., Buckman, *supra* note 99; Tracey Lien, *Lyft Settles Worker Misclassification Lawsuit for \$12.25 Million*, L.A. TIMES (Jan. 27, 2016, 7:18 PM), <http://www.latimes.com/business/technology/la-fi-tn-lyft-settlement-20160126-story.html> [<https://perma.cc/E66C-Q9NL>].

102. The classification of drivers as either employees or independent contractors is an important concern for TNC liability. This question is critical in determining whether TNCs are liable in tort for drivers' conduct. See Buckman, *supra* note 99. However, it is outside this Note's scope because presumably self-driving vehicles will ultimately render the driver classification question insignificant.

103. See *Transportation Network Companies*, PROP. CASUALTY INSURERS ASS'N AM., <http://www.pciaa.net/industry-issues/transportation-network-companies> (last visited Feb. 16, 2017) [<https://perma.cc/4RBX-CAUK>].

104. See *id.*

105. See Dobson, *supra* note 96, at 710 ("Although most states have not enacted as detailed of statutes for TNC insurance requirements as Colorado and California have, the insurance concerns are still present.").

106. See *id.*

107. See *id.* at 708; CAL. PUB. UTIL. CODE § 5434 (West 2015).

108. CAL. PUB. UTIL. CODE § 5432(a).

109. See *id.* § 5440(a).

110. See COLO. REV. STAT. § 40-10.1-604(3) (2016).

111. See *id.* § 40-10.1-603.

meet certain levels of regulation.¹¹² For example, Baton Rouge, Louisiana, allows “TNCs to operate, free of the licensing, inspections and rate-setting regulations of the Taxicab Control Board” and does not require specific insurance coverage.¹¹³ The city nonetheless requires that drivers pass background checks and that vehicles undergo inspections.¹¹⁴ Alternatively, some cities, like Auburn, Alabama, have imposed burdensome ordinances.¹¹⁵ The harsh requirements forced Uber to end its operations in the area because of practical and economic unfeasibility.¹¹⁶ Finally, some cities have taken a middling regulatory approach, like Chicago, Illinois, which requires drivers to obtain chauffeurs’ licenses, pass background checks, and undergo vehicle inspections.¹¹⁷

Although legislators and regulators have begun to confront difficult questions posed by emerging technologies, law often lags behind new technology, and self-driving vehicles fit into that narrative.¹¹⁸ Technological advances will ultimately produce vehicles that require no human intervention,¹¹⁹ and questions of liability among the existing disparate framework will become increasingly complex: Who—or what—should be held responsible for mistakes on the road?¹²⁰ Accordingly, Part II identifies competing automobile accident tort liability and insurance regimes to understand the challenges in adapting them to new technological and societal changes in transportation methods.

II. THE SCENIC ROUTE: A LANDSCAPE OF LIABILITY THEORIES, VEHICLE STATUTES, AND INSURANCE REGIMES

Existing laws are likely adequate to handle accidents involving the limited autopilot features already found in some vehicles.¹²¹ Normally, an individual sitting in the driver’s seat has a duty to use reasonable care to

112. See Dobson, *supra* note 96, at 711.

113. Lehmann, *supra* note 66, at 9.

114. See *id.*

115. See Dobson, *supra* note 96, at 711. The city mandated that TNCs be held to the same requirements as taxi companies, including the same commercial insurance, city licensing fees, signage, and background check requirements. *Id.*

116. See *id.*

117. See *id.*

118. See Alex Davies, *Self-Driving Cars Are Legal, but Real Rules Would Be Nice*, WIRED (May 15, 2015, 7:00 AM), <https://www.wired.com/2015/05/self-driving-cars-legal-real-rules-nice/> (explaining the difficulties of regulating self-driving vehicles) [<https://perma.cc/6N6N-9LPQ>]; Markoff, *supra* note 24 (quoting counsel for the California Department of Motor Vehicles who states, “The technology is ahead of the law in many areas If you look at the vehicle code, there are dozens of laws pertaining to the driver of a vehicle, and they all presume to have a human being operating the vehicle.”).

119. See Mitchell, *supra* note 37; see also Levine, *supra* note 38.

120. See, e.g., Alexis C. Madrigal, *If a Self-Driving Car Gets in an Accident, Who—or What—Is Liable?*, ATLANTIC (Aug. 13, 2014), <http://www.theatlantic.com/technology/archive/2014/08/if-a-self-driving-car-gets-in-an-accident-who-is-legally-liable/375569/> [<https://perma.cc/8ZBY-XTRU>].

121. See generally Bryant Walker Smith, *Automated Vehicles Are Probably Legal in the United States*, 1 TEX. A&M L. REV. 411 (2014) (providing a comprehensive analysis of whether self-driving vehicles can be legally used and sold in the United States).

avoid accidents, but questions arise about how such a duty may be imposed on a “driver” unable to intervene in the vehicle’s operation.¹²² Moreover, traffic laws assume that automobiles have “drivers,” “owners,” and “operators.”¹²³ However, the transformative change in the automobile industry—from limited autopilot to complete automation—may blur the lines between these statutory terms and make them obsolete.

Automobile accident litigation accounts for two-thirds of all claims, three-quarters of all lawyers’ fees, and three-quarters of all payouts in the personal injury liability system.¹²⁴ Within this system, different regimes result in a wide variation of how the law treats vehicle owners, operators, and insurance policyholders when accidents occur. These liability differences are key to understanding how the materialization of self-driving vehicles and TNCs present new challenges to traditional conceptions of tort liability. Part II first explains the suitability of tort law for analyzing the issues presented and applicable theories of recovery. It then identifies competing tort and insurance rules for two critically important parties when crashes occur: vehicle owners and drivers.

A. Why Tort Law?

When an automobile accident occurs, both tort law and criminal law play important roles.¹²⁵ As vehicular crashes are one of the most pervasive causes of injury that society encounters,

the law devotes substantial attention to preventing that bloodshed, allocating losses, and punishing dangerous drivers. . . . Both [tort and criminal law] provide a mechanism for sanctioning dangerous drivers and deterring future crashes. Both can apply to the same event—any given crash is potentially criminal, tortious, both, or neither. However, tort and criminal law impose different sanctions according to different standards.¹²⁶

Scholars have identified several explanations for why understanding vehicular crashes as tort-like is useful.¹²⁷ First, automobiles are fundamentally hazardous, while simultaneously invaluable.¹²⁸ Thus, “[t]o the extent that traffic crashes are seen as inevitable costs of a necessary activity, tort’s regime of loss allocation is more appropriate than criminal

122. *See supra* note 38 and accompanying text.

123. *See infra* Part II.C.

124. THOMAS F. BURKE, LAWYERS, LAWSUITS, AND LEGAL RIGHTS: THE BATTLE OVER LITIGATION IN AMERICAN SOCIETY 103 (2002).

125. *See generally* Noah M. Kazis, Comment, *Tort Concepts in Traffic Crimes*, 125 YALE L.J. 1131 (2016) (identifying how the state has blurred tort and criminal law in the traffic-crime context).

126. *Id.* Despite clear distinctions between tort and criminal law generally, in the vehicular accident context “the line between tort and criminal law is blurring, as criminal law takes on significant features of tort doctrine.” *Id.* at 1132.

127. *See id.* at 1146.

128. *See id.* (citing GUIDO CALABRESI, THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS 18–20 (1970)).

law's prohibitions."¹²⁹ Second, crashes often result from close calls involving simple bad luck.¹³⁰ As a result, criminal law's conceptual focus on moral culpability is not always appropriate when differences of a few inches or seconds cause an accident.¹³¹ For these reasons, this Note discusses automobile accidents in the tort law context and tort law's application to the emergence of self-driving technology and to limited vehicle ownership.

1. Fundamental Tort Principles

In automobile accident litigation, the two most common theories of liability raised by plaintiffs are negligence and strict liability.¹³² Strict liability in tort applies fault to the party that caused injury, regardless of actual fault.¹³³ Generally, strict liability is asserted in claims that implicate products liability¹³⁴ or abnormally dangerous activities.¹³⁵ However, many courts have moved away from applying absolute strict liability, instead applying a reasonableness consideration that begins to merge with the negligence standard.¹³⁶

Most of tort law is governed by negligence,¹³⁷ which considers the reasonableness of a defendant's actions measured in terms of standards of care.¹³⁸ To prevail on a negligence claim, a plaintiff must show a defendant's failure to exercise the care that a reasonably prudent person would exercise in like circumstances, expressed in four elements: duty, breach, causation, and damages.¹³⁹ However, doctrines fitting within negligence sometimes allow plaintiffs to prevail without explicitly proving

129. *Id.*

130. *See id.* (citing Tom Baker, *Liability Insurance, Moral Luck, and Auto Accidents*, 9 THEORETICAL INQUIRIES L. 165, 167–70 (2008)).

131. *See id.* (citing Stephen J. Schulhofer, *Harm and Punishment: A Critique of Emphasis on the Results of Conduct in the Criminal Law*, 122 U. PA. L. REV. 1497, 1513 n.64 (1974)).

132. *See, e.g.*, Marchant & Lindor, *supra* note 10, at 1323.

133. *See id.*

134. *See* RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 1 (AM. LAW INST. 1988). For example, manufacturers of defective tools are liable to injured individuals who show that they were using the product as intended, even if manufacturers were not negligent in making the tools. *See Greenman v. Yuba Power Prods.*, 377 P.2d 897, 901 (Cal. 1963) (“To establish the manufacturer’s liability it was sufficient that plaintiff proved that he was injured while using the [power tool as] it was intended to be used as a result of a defect in design and manufacture of which plaintiff was not aware that made [it] unsafe for its intended use.”).

135. *See* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL AND EMOTIONAL HARM ch. 4, scope note (AM. LAW INST. 2005).

136. *See* Marchant & Lindor, *supra* note 10, at 1323.

137. *See* Kenneth W. Simons, *The Crime/Tort Distinction: Legal Doctrine and Normative Perspectives*, 17 WIDENER L.J. 719, 722 (2008).

138. *See* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL AND EMOTIONAL HARM § 7.

139. *See Negligence*, BLACK’S LAW DICTIONARY (10th ed. 2014).

each element.¹⁴⁰ Moreover, plaintiffs can attempt to recover not only from individuals but also from manufacturers, franchisors, trade associations, or entire industries.¹⁴¹ Thus, broader theories of recovery may be applicable to seek redress against alleged tortfeasors when tortious conduct includes an array of participants.¹⁴²

2. Enterprise Liability Theory

Under enterprise liability theory, individual entities can be held jointly liable for conduct resulting from participation in a shared enterprise.¹⁴³ In other words, separate organizations can be held liable for practices or actions in which they shared.¹⁴⁴ Thus, like other theories in which tortious conduct can be inferred, enterprise liability is based on the assertion that courts may determine liability even when plaintiffs are unable to show that a particular defendant is at fault.¹⁴⁵

Enterprise liability theorizes that activities that are foreseeable yet potentially hazardous should bear the costs they engender.¹⁴⁶ Guido Calabresi—an advocate of the law and economics movement—and other proponents envisioned enterprise liability as extending beyond traditional negligence to include the idea of no-fault negligence.¹⁴⁷ Accordingly, enterprise liability would entail “the notion that losses should be borne by the doer[s], the enterprise, rather than distributed on the basis of fault” that results from individual negligence.¹⁴⁸ Thus, the actual costs of activities are the injuries that occur as a result, regardless of blame.¹⁴⁹

Because the goals of enterprise liability are victim compensation and loss spreading, Calabresi connected loss distribution to a strict allocation of resources theory.¹⁵⁰ He argued that framing “the problem of accident law in terms of activities rather than in terms of careless conduct [is] the first step toward a rational system of resource allocation.”¹⁵¹ Further, “a system of nonfault enterprise liability . . . that assesses the costs of accidents to

140. Under a theory of *res ipsa loquitur*, for example, “the mere fact of an accident’s occurrence raises an inference of negligence that establishes a *prima facie* case.” *Res Ipsa Loquitur*, BLACK’S LAW DICTIONARY (10th ed. 2014).

141. See Victoria C. Dawson, *Who Is Responsible When You Shop Until You Drop?: An Impact on the Use of the Aggressive Marketing Schemes of “Black Friday” Through Enterprise Liability Concepts*, 50 SANTA CLARA L. REV. 747, 751–52 (2010).

142. See *id.*

143. See, e.g., Naomi Sheiner, Comment, *DES and a Proposed Theory of Enterprise Liability*, 46 FORDHAM L. REV. 963, 974 (1978) (proposing enterprise liability theory as a solution to the causation problems posed in Diethylstilbestrol (DES) litigation).

144. See *id.*

145. See *id.*

146. See Dawson, *supra* note 141, at 785 (citing Guido Calabresi, *The Decision for Accidents: An Approach to Nonfault Allocation of Cost*, 78 HARV. L. REV. 713, 716 (1965)).

147. See *id.* at 766.

148. Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499, 500 (1961).

149. See *id.* at 505.

150. See Dawson, *supra* note 141, at 766.

151. *Id.* at 767 (quoting Calabresi, *supra* note 146, at 717).

activities according to their involvement in accidents”¹⁵² would be the appropriate way to achieve “a system of accident liability based on accident ‘involvement’ instead of fault.”¹⁵³ Thus, enterprise liability could aid society in determining to what extent it seeks to deter accidents.¹⁵⁴

In line with these principles, early enterprise liability scholars focused on proposals for automobile compensation plans.¹⁵⁵ Inspired by the enactment of workers’ compensation legislation, scholars envisioned related solutions for automobile accidents.¹⁵⁶ However, resistance from special interests—insurance companies and trial lawyers—forced enterprise liability scholars to turn to strict products liability.¹⁵⁷ Therefore, strict products liability and no-fault compensation plans are aspects of broader enterprise liability theory.¹⁵⁸

According to enterprise liability theory, personal injury law’s goal should be to create “a more comprehensive and more adequate means of protection for all victims of personal injuries . . . without placing too heavy a burden on enterprise or any other segment of the social group.”¹⁵⁹ Today, although individual negligence still dominates tort law, enterprise-liability-like remedies have become incorporated legislatively and administratively into workers’ compensation plans, health care policies, and no-fault automobile insurance schemes.¹⁶⁰

After an automobile crash, several parties are potentially liable in a victim’s tort lawsuit. A vehicle’s owner and driver are both central to the issue of tort liability.¹⁶¹

152. Calabresi, *supra* note 146, at 719.

153. *Id.* at 743.

154. *See* Dawson, *supra* note 141, at 767 (citing Calabresi, *supra* note 146, at 742–43).

155. *See* Virginia E. Nolan & Edmund Ursin, *Enterprise Liability Reexamined*, 75 OR. L. REV. 467, 471 (1996) (discussing the focus of early enterprise liability theorists). The authors argued that enterprise liability theory, properly understood, opens up new possibilities for personal injury law reform. *See id.* at 469.

156. *See id.* at 471.

157. *See id.*

158. *See id.*

159. *See id.* (quoting Leon Green, *The Individual’s Protection Under Negligence Law: Risk Sharing*, 47 NW. U. L. REV. 751, 775 (1953)).

160. *See* Dawson, *supra* note 141, at 784.

161. There exist many other parties with potential tort liability. As a vehicle’s manufacturer may be entirely responsible for a self-driving vehicle’s functionality, products liability is a relevant body of tort law. A products liability claim grounded in defective design may be available against the manufacturer of a self-driving vehicle. *See, e.g.,* Bose, *supra* note 26; Kyle Colonna, Note, *Autonomous Cars and Tort Liability*, 4 CASE W. RES. J.L. TECH. & INTERNET 81 (2012). A defectively designed product is “one which, at the time it leaves the seller’s hands, is in a condition not reasonably contemplated by the ultimate consumer and is unreasonably dangerous for its intended use; that is one whose utility does not outweigh the danger inherent in its introduction into the stream of commerce.” *Voss v. Black & Decker Mfg. Co.*, 450 N.E.2d 204, 207 (N.Y. 1983) (quoting *Robinson v. Reed-Prentice Div. of Package Mach. Co.*, 403 N.E.2d 440, 443 (N.Y. 1980)). Accordingly, a manufacturer may be held strictly liable for injuries that result from a defectively designed product. *See, e.g., Hoover v. New Holland N. Am.*, 11 N.E.3d 693, 701 (N.Y. 2014) (“Where a plaintiff is injured as a result of a defectively designed product, the product manufacturer or others in the chain of distribution may be held strictly liable for those

B. Vehicle Ownership and Vicarious Liability

Vehicle owners may be held liable in tort, but the definition of what constitutes an owner for purposes of liability and the reach of that liability vary by state. Moreover, vehicle ownership liability implicates federal law and insurance requirements. These variations are significant when considering the potential ability of TNCs to deploy fleets of self-driving vehicles; these changes may result in concentrated ownership by commercial entities while diminishing ownership among private individuals.

Some states hold vehicle owners vicariously liable for a driver's negligence. For example, New York imposes liability against the vehicle's owner for the negligence of the vehicle's permissive users.¹⁶² Further, the applicable statutory definition of "owner" includes "any lessee or bailee of a motor vehicle or vessel having the exclusive use thereof, under a lease or otherwise, for a period greater than thirty days."¹⁶³ At common law, a vehicle's owner was not liable for a permissive user's negligent operation.¹⁶⁴ Thus, New York's statute created a cause of action where none previously existed,¹⁶⁵ in the nature of vicarious liability.¹⁶⁶ The statute's purpose is to ensure access by injured victims to "a financially responsible insured person against whom to recover for injuries"¹⁶⁷ and to "remove the hardship which the common-law rule visited upon innocent persons by preventing 'an owner from escaping liability by saying that his car was being used without authority, or not in his business.'"¹⁶⁸

In addition to holding owners vicariously liable for permissible drivers' negligence, the New York statute requires that owners acquire adequate insurance coverage.¹⁶⁹ The connection between owners' vicarious liability and their accompanying obligation to maintain adequate insurance suggests a legislative intent to ensure that owners subject to New York law act responsibly regarding their vehicles.¹⁷⁰ New York is not alone in imposing unlimited vicarious liability on vehicle owners for driver negligence.

injuries." (citations omitted)). Nonetheless, a thorough discussion of products liability is beyond this Note's scope.

162. See N.Y. VEH. & TRAF. LAW § 388 (McKinney 2011). The statute provides:

Every owner of a vehicle used or operated in this state shall be liable and responsible for death or injuries to person or property resulting from negligence in the use or operation of such vehicle, in the business of such owner or otherwise, by any person using or operating the same with the permission, express or implied, of such owner.

Id.

163. *Id.* § 128; see also *Hassan v. Montuori*, 786 N.E.2d 25, 27 (N.Y. 2003).

164. See *Morris v. Snappy Car Rental, Inc.*, 637 N.E.2d 253, 254 (N.Y. 1994).

165. See *id.* at 255.

166. See *Gochee v. Wagner*, 178 N.E. 553, 554 (N.Y. 1931).

167. *Plath v. Justus*, 268 N.E.2d 117, 119 (N.Y. 1971).

168. *Mills v. Gabriel*, 18 N.Y.S.2d 78, 80 (App. Div. 1940) (quoting *Plaumbo v. Ryan*, 210 N.Y.S. 225 (App. Div. 1925)).

169. See N.Y. VEH. & TRAF. LAW § 388(4) (McKinney 2011).

170. See *Fried v. Seippel*, 599 N.E.2d 651, 655 (N.Y. 1992).

Similar vicarious liability statutes have been enacted in Maine and Rhode Island.¹⁷¹

There exists an important constraint on unlimited vicarious liability statutes. New York's statute is preempted by federal law through the Graves Amendment¹⁷² to the Safe, Accountable, Flexible, Efficient Transportation Equity Act¹⁷³ (SAFETEA). Due to Congress's Commerce Clause power,¹⁷⁴ the Graves Amendment prevents states from holding rental and leasing companies vicariously liable for injuries resulting from a vehicle's negligent operation.¹⁷⁵ Accordingly, the Graves Amendment protects New York lessors and rental companies from vicarious liability.¹⁷⁶ The Graves Amendment also preempts other states' laws.¹⁷⁷ For example, the Eleventh Circuit's affirmation of the Graves Amendment's constitutionality may leave individuals without recourse under Florida law if injured by the driver of a rented vehicle.¹⁷⁸

Florida's vehicle ownership law is based on a form of vicarious liability labeled the "dangerous instrumentality doctrine."¹⁷⁹ Historically, courts applied this doctrine in the master-servant context where a master entrusted a servant with an instrument that was highly dangerous or could be used in a high-risk manner.¹⁸⁰ In these circumstances, the master could be held liable for injuries resulting from the servant using the instrument.¹⁸¹ Most states have held that automobiles are not dangerous instruments under this common law theory of vicarious liability; Florida is an exception.¹⁸²

First applied to automobiles in 1920, Florida's dangerous instrumentality doctrine imposes strict vicarious liability upon a vehicle's owner who voluntarily entrusts that vehicle to an individual whose negligent operation

171. See ME. REV. STAT. ANN. tit. 29-A, § 1652(1) (2016); 31 R.I. GEN. LAWS § 31-34-4(a) (2016); Susan Lorde Martin, *Commerce Clause Jurisprudence and the Graves Amendment: Implications for the Vicarious Liability of Car Leasing Companies*, 18 U. FLA. J.L. & PUB. POL'Y 153, 157 (2007) (providing an overview of state vicarious liability law to understand the constitutional implications of the Graves Amendment).

172. 49 U.S.C. § 30106 (2012).

173. See *Green v. Toyota Motor CreditCorp*, 605 F. Supp. 2d 430, 433–34 (E.D.N.Y. 2009).

174. U.S. CONST. art. I, § 8, cl. 3. (providing Congress's power [t]o regulate Commerce . . . among the several States.").

175. See *Green*, 605 F. Supp. 2d at 433–34.

176. See, e.g., *Graham v. Dunkley*, 852 N.Y.S.2d 169 (App. Div. 2008).

177. See Brent Steinberg, Note, *The Graves Amendment: Putting to Death Florida's Strict Vicarious Liability Law*, 62 FLA. L. REV. 795, 796–97 (2010) (analyzing the effects of the Graves Amendment on Florida law).

178. See *id.* at 796 (citing *Garcia v. Vanguard Car Rental USA, Inc.*, 540 F.3d 1242, 1253 (11th Cir. 2008)).

179. See generally Sarah E. Williams, Comment, *Florida's Dangerous Instrumentality Doctrine*, 25 STETSON L. REV. 177 (1995) (describing vicarious liability and the development of Florida's dangerous instrumentality doctrine, and suggesting a judicial framework for automobile accident cases under the doctrine).

180. See *id.* at 179.

181. See *id.* at 179–80.

182. See *id.* at 180.

causes damage.¹⁸³ Seventy years after its adoption, the Supreme Court of Florida reaffirmed the doctrine's rationale:

The dangerous instrumentality doctrine seeks to provide greater financial responsibility to pay for the carnage on our roads. It is premised upon the theory that the one who originates the danger by entrusting the automobile to another is in the best position to make certain that there will be adequate resources with which to pay the damages caused by its negligent operation. If Florida's traffic problems were sufficient to prompt its adoption in 1920, there is all the more reason for its application to today's high-speed travel upon crowded highways. The dangerous instrumentality doctrine is unique to Florida and has been applied with very few exceptions.¹⁸⁴

Using this theory, Florida courts impute negligence from the individual who actually committed a negligent act (the driver) to a third party with no role in the act.¹⁸⁵ Thus, while Florida's common law application of the doctrine to motor vehicles may be unique, it is similar to New York's statute because both hold individuals responsible who are not actually at fault, through strict and vicarious liability. However, Florida's strict vicarious liability differs from New York's because it is not unlimited.¹⁸⁶ Instead, Florida relieves owners and lessors of liability if they maintain specified insurance minimums through a "financial responsibility" statute.¹⁸⁷ Several other states have similar financial responsibility schemes to limit vicarious liability of owners for driver negligence.¹⁸⁸ As in New York, vehicle ownership liability in Florida and states with similar statutory schemes becomes relevant in the TNC context because ownership definitions and the extent of ownership liability are important considerations in concentrated ownership structures dominated by commercial entities.

Alternatively, some states specifically eliminate vicarious liability for owners.¹⁸⁹ Iowa's statute declares that, for leased vehicles, a vehicle's lessee is the owner for liability purposes, not the person to whom title has been issued.¹⁹⁰ Similarly, Utah's statute provides that a vehicle's "lessee in possession" is its owner.¹⁹¹ Thus, in these states an individual who has

183. *See Aurbach v. Gallina*, 753 So. 2d 60, 62 (Fla. 2000) (citing *S. Cotton Oil Co. v. Anderson*, 86 So. 629, 637 (Fla. 1920)).

184. *Kraemer v. Gen. Motors Acceptance Corp.*, 572 So. 2d 1363, 1365 (Fla. 1990).

185. *See Aurbach*, 753 So. 2d at 62–63.

186. *See Steinberg*, *supra* note 177, at 804.

187. *Martin*, *supra* note 171, at 158–59.

188. *See id.*

189. *See id.* at 160.

190. *See id.*; IOWA CODE § 321.493 (2017) (“[I]f the vehicle is leased, ‘owner’ means the person to whom the vehicle is leased, not the person to whom the certificate of title for the vehicle has been issued”).

191. UTAH CODE ANN. § 41-12a-103(8)(b) (West 2016); *Martin*, *supra* note 171, at 160.

leased a vehicle is its owner, and therefore the leasing company, dealership, or rental company cannot face vicarious liability.¹⁹²

Other states differentiate between long- and short-term lessors for liability purposes.¹⁹³ Nevada provides vicarious liability only for short-term lessees, provided that the requisite insurance has not been obtained.¹⁹⁴ Nevada defines a short-term lessor as one who has leased a vehicle for thirty-one days or less.¹⁹⁵

In sum, the reach of vehicle ownership liability varies by state, as does the definition of what constitutes a vehicle's owner for liability purposes. Moreover, questions of insurance coverage are crucial in determining the liability of vehicle owners. Finally, federal law critically preempts vicarious liability in some circumstances. These details are necessary considerations in determining how to allocate liability as TNCs potentially use self-driving vehicles to reduce individual ownership.

C. Drivers and Operators

There is no state statutory scheme that expressly requires a vehicle to have a human driver.¹⁹⁶ Nonetheless, state vehicle codes impose obligations on vehicle drivers and, correspondingly, any person (or instrument) who drives, operates, or has "actual physical control" of a vehicle.¹⁹⁷ Generally, state statutes broadly define these operative terms.

New York's statute is representative of an expansive definition of "driver," encompassing every "person who operates or drives or is in actual physical control of a vehicle."¹⁹⁸ Accordingly, any individual sitting at the steering wheel falls under the definition of "driver" whether or not the individual is exercising control. Thus, usage of the terms "drives," "operates," or "is in actual physical control of," includes a wide range of possible circumstances.¹⁹⁹ For example, California courts have deemed individuals to be "drivers" when (1) exiting the vehicle from the front left seat,²⁰⁰ (2) failing to engage the parking brake before exiting the vehicle,²⁰¹

192. Before enactment of the Graves Amendment, New York leasing companies paid approximately \$130 million annually in court judgments because of the state's unlimited vicarious liability law. *See* Steinberg, *supra* note 177, at 800.

193. *See* Martin, *supra* note 171, at 160.

194. *See id.*

195. *See id.*

196. *See* Smith, *supra* note 121, at 463 (surveying the vehicle codes of every U.S. state and finding that "[u]nlike the Geneva Convention, no state statute expressly requires that a vehicle have a driver").

197. *See id.*

198. N.Y. VEH. & TRAF. LAW § 113 (McKinney 2011).

199. *See* Smith, *supra* note 121, at 464–74.

200. *See* Adler v. Dep't of Motor Vehicles, 279 Cal. Rptr. 28, 30 (Ct. App. 1991) (holding that the petitioner was a "driver" subject to license suspension when she opened the door of a parked vehicle into a cyclist's path and noting that "[t]he statute makes no mention of whether the vehicle's engine is on or whether the vehicle is parked, stopped, or in motion"). The court further declared, "[E]ven a person standing outside the car, trying to push it into a position so he could start it using another vehicle, was nevertheless 'engaged in driving or operating' that car." *Id.*

201. *See* Panopulos v. Maderis, 303 P.2d 738, 742 (Cal. 1956).

(3) towing an occupied vehicle,²⁰² and (4) manually pushing an inoperable vehicle.²⁰³ These wide-ranging circumstances suggest that an individual in “actual physical control of” a vehicle can be the “driver” even if one does not “drive” it.²⁰⁴ Conversely, an individual who drives a vehicle can be a “driver” even if she is not in “actual physical control.”²⁰⁵

Some states, like California, differentiate in case law between driving—which requires motion—and operating—which does not.²⁰⁶ Other states clearly define the terms differently by statute. In Wisconsin, the legislature defines “operate” and “drive” separately in the drunk-driving context.²⁰⁷ Whereas “drive” is defined as “the exercise of physical control over the speed and direction of a motor vehicle while it is in motion,” the word “operate” means “the physical manipulation or activation of any of the controls of a motor vehicle necessary to put it in motion.”²⁰⁸ Alternatively, Illinois does not statutorily distinguish between driving, operating, or being in physical control of a vehicle.²⁰⁹

Like “driver,” the word “operator” in the automobile context is broadly defined by courts and legislatures, with the definitions varying by jurisdiction.²¹⁰ Courts have broadly construed the term when applying it to vehicle and traffic laws.²¹¹ Some courts have recognized that a person may operate a vehicle without driving it.²¹² The Supreme Court of Massachusetts held that “[a] person operates a motor vehicle . . . when . . . he intentionally does any act or makes use of any mechanical or electrical agency which alone or in sequence will set in motion the motive power of that vehicle.”²¹³ Likewise, New York courts have explicitly held that “operator” is broader than “driver.”²¹⁴ Finally, “actual physical control” can be even broader than operation.²¹⁵ The

202. See *Fairman v. Mors*, 130 P.2d 448, 450–51 (Cal. Dist. Ct. App. 1942).

203. See *Arellano v. Moreno*, 109 Cal. Rptr. 421, 425 (Ct. App. 1973).

204. *Adler*, 279 Cal. Rptr. at 30.

205. *Panopulos*, 303 P.2d at 742.

206. See *Mercer v. Dep’t of Motor Vehicles*, 809 P.2d 404, 410 n.6 (Cal. 1991).

207. See *Milwaukee County v. Proegler*, 291 N.W.2d 608, 613 (Wis. Ct. App. 1980).

208. WIS. STAT. § 346.63 (2017).

209. See 625 ILL. COMP. STAT. ANN. 5/1-115.8 (West 2016) (“Drive. To drive, operate, or be in physical control of a motor vehicle.”).

210. Vermont’s statutory definition is the broadest. Smith, *supra* note 121, at 470–71 (“‘Operate,’ ‘operating,’ or ‘operated’ as applied to motor vehicles shall include ‘drive,’ ‘driving,’ and ‘driven’ and shall also include an attempt to operate, and shall be construed to cover all matters and things connected with the presence and use of motor vehicles on the highway, whether they be in motion or at rest.” (quoting VT. STAT. ANN. tit. 23, § 4(24) (2013))); see also Marlene A. Attardo, Annotation, *What Constitutes “Use” or “Operation” Within Statute Making Owner of Motor Vehicle Liable for Negligence in Its Use or Operation*, 103 A.L.R.5th 339 (2013).

211. See Smith, *supra* note 121, at 471.

212. See generally James O. Pearson, Jr., Annotation, *What Constitutes Driving, Operating, or Being in Control of Motor Vehicle for Purposes of Driving While Intoxicated Statute or Ordinance*, 93 A.L.R.3d 7 (1979).

213. *Commonwealth v. Uski*, 160 N.E. 305, 306 (Mass. 1928).

214. See, e.g., *People v. Prescott*, 745 N.E.2d 1000, 1004 (N.Y. 2001) (“Our courts have long recognized that the definition of operation is broader than that of driving . . .”).

215. See Smith, *supra* note 121, at 473.

Supreme Court of Montana was the first state to hold that an individual has actual physical control of a vehicle if she “has existing or present bodily restraint, directing influence, domination or regulation, of it.”²¹⁶

The three descriptors—“drives,” “operates,” or “is in actual physical control of”—capture a broad array of possible circumstances that significantly varies by jurisdiction.²¹⁷ Therefore, depending on the situation and jurisdiction, individuals sitting in the driver’s seats of self-driving vehicles may be considered drivers even if they are not exercising any control. This has the potential to create unfair results. Thus, these nuanced discrepancies are important in defining the tort obligations of vehicle drivers or operators²¹⁸ and for determining how they should apply to operators of self-driving vehicles to ensure that inequitable outcomes are avoided.

D. Duties of Care: Fault-Based Liability

A driver’s actions may constitute civil negligence without reaching the higher threshold of criminal conduct.²¹⁹ While a minority of states follow a no-fault system for insurance purposes,²²⁰ most states rely on a determination of fault when apportioning liability.²²¹ Thus, it is necessary to identify the relevant duty that a vehicle’s driver owes and the factors to consider in determining whether that duty has been breached.²²²

In most jurisdictions, there is an obligation of prudence required of drivers in lawsuits alleging driver negligence.²²³ Some states’ codes also incorporate the concept of “due care.”²²⁴ By statute, New York requires drivers to “exercise due care to avoid colliding with any bicyclist, pedestrian, or domestic animal upon any roadway.”²²⁵ Moreover, New York drivers have common law duties concerning the safe operation of their vehicles.²²⁶ Specifically,

drivers are under a duty: (1) to maintain a reasonably safe rate of speed; (2) to have their automobiles under reasonable control; (3) to keep a proper lookout, under the circumstances then existing, to see and be aware

216. *Id.* (quoting *State v. Ruona*, 321 P.2d 615, 618 (Mont. 1958)).

217. *See id.* at 464–67.

218. *See id.* at 474.

219. *See supra* notes 125–31 and accompanying text.

220. *See infra* Part II.E.

221. *See, e.g.*, Gary Wickert, *Commentary: The Failure of No-Fault Insurance*, CLAIMS J. (May 12, 2016), <http://www.claimsjournal.com/news/national/2016/05/12/270759.htm> [<https://perma.cc/HK97-Z3SY>].

222. *See supra* note 139 and accompanying text (describing negligence principles).

223. *See* 60A C.J.S. *Motor Vehicles* § 662 (2012); *see also* Smith, *supra* note 121, at 487.

224. *See* Smith, *supra* note 121, at 488.

225. N.Y. VEH. & TRAF. LAW § 1146(a) (McKinney 2011).

226. *See* 1A COMM. ON PATTERN JURY INSTRUCTIONS, ASS’N OF JUSTICES OF THE SUPREME COURT OF THE STATE OF N.Y., NEW YORK PATTERN JURY INSTRUCTIONS: CIVIL PJI 2:77 (3d ed. 2017) (noting drivers have a duty to keep a proper lookout under existing circumstances to see and be aware of what is in view and to use reasonable care to avoid accidents).

of what was in their view; and (4) to use reasonable care to avoid an accident.²²⁷

This duty includes a driver's responsibility to account for dangers from weather, road, traffic, and other conditions.²²⁸ To this end, a driver is "chargeable with knowledge of what a prudent and vigilant operator would have seen, and is negligent if he fails to discover a vehicle which, or a traveler whom, he could have discovered in time to avoid the injury in the exercise of reasonable care."²²⁹

References in statutes and court holdings to reasonableness, prudence, practicability, and due care show that while the law accepts a certain level of risk, it does not specify how to determine that level.²³⁰ Thus, the statutory language and case law imply a relative approach and the need for context rather than certainty.²³¹ Regardless, this approach requires a fault determination based on driver conduct, which is understandably relevant when considering liability solutions for vehicles with no drivers. While some states impose a fault-based regime, others use a system that limits the ability of victims to sue alleged negligent drivers.

E. No-Fault Insurance

In the event of an accident, drivers can be liable under traditional negligence²³² or no-fault liability.²³³ Of course, tort law underpins automobile usage in all jurisdictions.²³⁴ However, vehicle owners are generally required to have third-party liability insurance or to certify that they have the means to self-insure.²³⁵ As a result, "with insurance companies and their adjusters being well aware of the applicable 'rules of the road' (relevant motor vehicle tort case law and legislation) in assessing fault and whether there was a breach of duty and causation which resulted in damages," the majority of claims never go to court.²³⁶

In a no-fault regime, insurance policyholders are limited in their right to sue negligent tortfeasors.²³⁷ Drivers may not use the court system unless their injuries reach a specified level.²³⁸ If injuries are below the threshold,

227. Hodder v. United States, 328 F. Supp. 2d 335, 341 (E.D.N.Y. 2004) (citations omitted).

228. *See id.*

229. Smith, *supra* note 121, at 492 (quoting Pike Taxi Co. v. Patterson, 63 So. 2d 599, 602 (Ala. 1952)).

230. *See id.* at 499.

231. *See id.* at 493.

232. *See supra* Part II.D.

233. *See* Bridget Hagan, *The Future Is Now: Driverless Cars and the Insurance Landscape*, FINTECH L. REP., May–June 2016, at 8, 9–10. Less commonly, drivers are held strictly liable for engaging in an ultrahazardous activity that causes injury. *See id.*

234. *See id.* at 9.

235. *See id.*

236. *Id.* at 10.

237. *See* Wickert, *supra* note 221.

238. *See* Hagan, *supra* note 233, at 10.

victims are compensated by their insurer, rather than the alleged tortfeasor's insurer.²³⁹

Twelve states and the District of Columbia use a no-fault system.²⁴⁰ No state has a pure no-fault regime.²⁴¹ Instead, no-fault states have adopted modified systems where the right to sue for damages is allowed only after satisfying statutorily defined monetary, verbal—or a combination of the two—thresholds.²⁴² New York, Florida, Michigan, New Jersey, and Pennsylvania have verbal thresholds, which use plain language to define precise injuries, or levels of “serious injury,” that must be met to commence a lawsuit.²⁴³ The definition of serious injury is sometimes established by statute,²⁴⁴ but it can also be a question of fact that depends on an injury's effect on the victim.²⁴⁵ Alternatively, Kansas, Kentucky, Massachusetts, Minnesota, North Dakota, Hawaii, and Utah use monetary thresholds, where a specific dollar amount of medical expenses must be accrued before a lawsuit may be filed.²⁴⁶

In addition to threshold-related variations among no-fault regimes, other states employ further modifications. Nine states offer “add-on” no-fault benefits, where no-fault coverage supplements the conventional tort liability system and its accompanying insurance coverage.²⁴⁷ Another distinction is that some states have mandatory add-on benefits, while in other states they are optional.²⁴⁸ Finally, Kentucky, New Jersey, and Pennsylvania use a hybrid no-fault system that creates two classes of policyholders by retaining parts of both pure no-fault and traditional fault-based schemes.²⁴⁹ This “choice” system allows drivers to choose between limited tort insurance, which is less expensive and restricts the right to recover, and full insurance, which allows retention of full rights to recover against third parties but costs more.²⁵⁰

In sum, there is wide variation among states concerning potential vicarious liability of vehicle owners, definitions for drivers and operators, notions of the duty of care, and how automobile insurance fits into accident liability. These differences matter in determining the suitability of certain

239. *See id.*

240. *See Wickert, supra note 221.*

241. *See id.*

242. *See id.*

243. *Id.*

244. *See, e.g.,* N.Y. INS. LAW § 5102(d) (McKinney 2016).

245. *See* *Washington v. Baxter*, 719 A.2d 733, 740 (Pa. 1998) (holding that the definition of serious injury depends on (1) the particular body function impaired, (2) the extent of the impairment, (3) the length of time the impairment lasted, (4) the treatment required to correct the impairment, and (5) any other relevant factors); *see also* JAMES M. ANDERSON ET AL., RAND INST. FOR CIV. JUST., THE U.S. EXPERIENCE WITH NO-FAULT AUTOMOBILE INSURANCE 13 (2010), http://www.rand.org/content/dam/rand/pubs/monographs/2010/RAND_MG860.pdf (noting the wide variation in how courts interpret the definition of serious injury) [<https://perma.cc/6DAP-7PW4>].

246. *See Wickert, supra note 221.*

247. ANDERSON ET AL., *supra note 245*, at 14.

248. *See id.*

249. *See Wickert, supra note 221.*

250. *See* ANDERSON ET AL., *supra note 245*, at 15.

liability aspects for transportation with reduced driver input and limited ownership.

III. THE PROPOSAL: APPLYING RECOGNIZED TORT PRINCIPLES TO FUTURE TRANSPORTATION

In applying the liability regimes discussed in Part II to the technological development identified in Part I, this Note first recognizes previous efforts to address these complexities. Accordingly, Part III identifies one scholar's analysis regarding the relationship between tort law and emerging technology before shifting to a practical application to self-driving vehicles. Part III then proposes specific suggestions that apply elements of enterprise liability to address the changing nature of vehicle ownership and driver control created by the simultaneous rise of ride-sharing services and self-driving vehicles.

A. Tort Law and Innovation

Tort law addresses duties of care that individuals and organizations owe. However, tort law does more than simply attribute blame; it fundamentally entails cost spreading.²⁵¹ Thus, the need to identify well-financed defendants with the ability to relieve victims is an important policy consideration.²⁵² Despite tort's settled foundations, there is implicit uncertainty in how the law applies to emerging technologies.²⁵³

This Note is not the first attempt to address legal issues for self-driving automobiles.²⁵⁴ To expand on the difficulties of these questions, Professor Kyle Graham has identified several recurring features that demonstrate the interplay between tort law and new technology.²⁵⁵ This Note implicates three of his observations.

251. See, e.g., *Owen v. City of Independence*, 445 U.S. 622, 657 (1980) ("No longer is individual 'blameworthiness' the acid test of liability; the principle of equitable loss-spreading has joined fault as a factor in distributing the costs of . . . misconduct."); see also *supra* Part II.A.2 (discussing the underlying justifications for enterprise liability theory).

252. See, e.g., *Nowak v. Nowak*, 394 A.2d 716, 723 (Conn. 1978) (holding that, in a personal injury action arising from an automobile accident, an unlicensed student driver's negligence could not be imputed to the plaintiff-instructor to bar a recovery).

253. See generally Kyle Graham, *Of Frightened Horses and Autonomous Vehicles: Tort Law and Its Assimilation of Innovations*, 52 SANTA CLARA L. REV. 1241 (2012) (emphasizing uncertainty in tort law's application to emerging technology).

254. See *infra* note 274 and accompanying text.

255. See Graham, *supra* note 253, at 1242. First, initial lawsuits involving new technology may be atypical of later cases, yet the rules that materialize from early cases may persist even as the technology evolves. *Id.* Second, these cases may be analyzed by reference to similarities in form between the new innovation and preexisting technology, but these analogies tend to evolve as time passes. *Id.* Third, the aspects of a new technology that involve unreasonable risks may be difficult to identify and then isolate from the innovation's beneficial attributes. *Id.* Fourth, the technology's early adopters might find more difficulty prevailing upon a claim than those arising once the technology becomes mainstream. *Id.* Fifth, "it may be impossible to predict whether, and for how long, the recurring themes within tort law and its application that tend to yield a 'grace' period for an invention will prevail over those tendencies with the opposite effect." *Id.*

First, while initial lawsuits relating to an innovation may not resemble later claims, law arising from early cases endures even as the technology's risks evolve.²⁵⁶ The invention of the automobile is a prime example of this phenomenon.²⁵⁷ Early automobile-related lawsuits barely resemble modern automobile litigation.²⁵⁸ Rather, early automobile litigation usually "involved claims that the sight or sound of a motor carriage caused a horse to take fright, resulting in injury either to the horse's rider, the occupants of a carriage or wagon the horse had been towing, or the horse itself."²⁵⁹ Turn-of-the-century courts understood that automobiles were unlikely to be a passing fad.²⁶⁰ Thus, theories of negligence per se, nuisance, and strict liability were rejected.²⁶¹ However, these cases are significant because "they produced automobile-friendly rules with staying power."²⁶²

Second, until new technology matures and consumers broadly adopt it, risk profiles are difficult to predict accurately.²⁶³ Thus, courts naturally gravitate toward form-based analogies.²⁶⁴ For example, nineteenth century hot-air balloon operators were subject to a strict liability rule for ground damage.²⁶⁵ This rule was subsequently adopted for airplanes because both were subject to gravity.²⁶⁶ The harsh strict liability rule for airplanes persisted even as commercial aviation became safe and common.²⁶⁷ Accordingly, simplistic early analogies may produce rules that might be too harsh and ultimately require reevaluation.²⁶⁸

Finally, courts often believe that early adopters assume the risk of new technology.²⁶⁹ Again, the invention of the automobile demonstrates this "blaming the user" dynamic.²⁷⁰ During the early automobile period, courts often erroneously blamed speeding for accidents, even when they appeared to have been caused by obvious mechanical failure, a common occurrence at the time.²⁷¹

As a consequence of these patterns, self-driving vehicle litigation may evolve over time, with early claims resembling contemporary lawsuits alleging negligent vehicle usage:

[C]laims likely will continue to ascribe fault to the users of autonomous vehicles, drawing distinctions between "proper" and "improper" use premised on the slowly accumulating body of knowledge on this topic.

256. *See id.* at 1243.

257. *See id.*

258. *See id.*

259. *Id.* at 1246.

260. *See id.* at 1249–50.

261. *See id.* at 1250.

262. *Id.* at 1248.

263. *See id.* at 1252.

264. *See id.*

265. *See id.* at 1254.

266. *See id.* at 1254–55.

267. *See id.* at 1255.

268. *See id.* at 1256.

269. *See id.* at 1260.

270. *Id.*

271. *See id.* at 1261.

Some of these claims may lack analogues in current torts practice. For example, perhaps plaintiffs will attack decisions to utilize autonomous vehicles in specific areas where experience has shown that they present relatively significant dangers.²⁷²

Courts should thus be mindful of the effect that early cases will have on subsequent decisions and legislation. Additionally, courts must be careful not to create overly harsh rules or attempt to analogize the technology to existing practice, while also understanding the critical role of early adopters. Professor Graham emphasizes the role of uncertainty in tort law's application to emerging technologies. In doing so, he builds upon scholarship anticipating how courts may perceive products liability issues arising from self-driving vehicle accidents and the potential change in liability from driver to manufacturer.²⁷³

Numerous experts have discussed this shift, its consequences, and solutions, as well as other proposals to address legal questions relating to self-driving vehicles.²⁷⁴ However, this Note argues that these contributions are incomplete because they do not consider the potentially dominant role of TNCs and the changing nature of vehicle ownership. Self-driving vehicle development is not occurring in isolation; rather, it is part of a broader revolution in transportation. Accordingly, this Note takes into account that innovation is not a linear progression but involves multiple emerging technological and societal developments. It further assumes eventual widespread deployment of fully autonomous self-driving vehicles to look beyond short-term solutions. Current tort analogues are inappropriate for this future transportation paradigm. Thus, this Note proposes a regime that considers liability issues for vehicle owners and operators with ubiquitous usage of self-driving vehicles and TNCs.

B. Resolution for the Future

This Note provides a solution to the significant automobile accident liability questions raised by the combined emergence of TNCs and self-driving vehicles. As these developments reshape the nature of vehicle ownership and driver control, an effective proposal considers three interrelated concerns: (1) optimal societal outcomes that account for the

272. *Id.* at 1270. Graham cites Professor Gary Marchant who notes that claims may resemble *Brouse v. United States*, 83 F. Supp. 373, 374 (N.D. Ohio 1949), which faulted a pilot for not keeping a proper lookout while using the plane's autopilot. Graham, *supra* note 253, at 1269 (citing Marchant & Lindor, *supra* note 10, at 1325).

273. See generally Marchant & Lindor, *supra* note 10.

274. See, e.g., *id.* (proposing legal and policy tools to protect manufacturers from liability, including an assumption of risk defense, legislatively imposed immunity, or federal preemption of state tort actions); see also Sophia H. Duffy & Jamie Patrick Hopkins, *Sit, Stay, Drive: The Future of Autonomous Car Liability*, 16 SMU SCL. & TECH. L. REV. 453 (2013) (proposing the application of strict liability law concerning canine ownership to self-driving vehicles); Harry Surden & Mary-Anne Williams, *Technological Opacity, Predictability, and Self-Driving Cars*, 38 CARDOZO L. REV. 121 (2016) (exploring how autonomous vehicles may challenge certain assumptions in existing legal structures); Stephen P. Wood et al., *The Potential Regulatory Challenges of Increasingly Autonomous Motor Vehicles*, 52 SANTA CLARA L. REV. 1423 (2012).

costs and benefits of new technology and continued development, (2) careful application of prevailing liability regimes to new innovation, and (3) workable solutions for courts and legislatures.

1. Strict and Vicarious Liability

The concurrent rise of ride-sharing and self-driving vehicles has created a unique convergence of traditional automobile manufacturers, leading technology corporations, and start-up TNCs.²⁷⁵ These enterprises simultaneously share some financial and data resources while also competing for market share and new technological breakthroughs.²⁷⁶ Accordingly, financially responsible organizations that play a significant role in diminishing vehicle ownership and largely eliminating driver input should be held appropriately liable for tortious conduct.²⁷⁷ Thus, enterprise liability doctrine is applicable.

Deterring undesirable behavior and compensating victims justify enterprise liability doctrine.²⁷⁸ Enterprise liability holds businesses strictly liable for risks associated with their routine operations; thus, it is associated with the doctrine of respondeat superior.²⁷⁹ Under respondeat superior, employers bear the risks of employees' negligent conduct that may injure innocent victims within the scope of employment.²⁸⁰ TNCs, and other potential commercial operators of self-driving vehicles, engage in a business with known risks. Therefore, these companies should bear the risk that their self-driven vehicles—whether leased, rented, or otherwise operated—may cause accidents. Like employer-employee relationships, these risks are part of normal business operations. Under vehicle codes that broadly define “operation,” self-driving vehicle operators should be held liable for their vehicles' conduct acting within the scope of the vehicle's role.²⁸¹

As enterprise liability is based on involvement in activities, rather than fault, it forms the theoretical basis for strict liability regimes predominantly implemented for products liability and inherently dangerous activities.²⁸² However, self-driving is theoretically safer than regular driving,²⁸³ which is already considered a normal, everyday activity. Further, self-driving vehicles may be implicated in accidents even absent a manufacturing or design defect. Nonetheless, strict liability is a useful approach for self-driving vehicles because the “driver” is a computer system incapable of negligence under traditional common law and statutory formulations of due

275. See *supra* notes 47–53 and accompanying text.

276. See *supra* Part.I.B.1–2.

277. See *supra* Part.II.B (discussing financial responsibility as critical to vicarious liability for vehicle owners).

278. See *supra* note 150 and accompanying text.

279. See Williams, *supra* note 179, at 204 n.170.

280. See *id.*

281. See *supra* notes 210–16 and accompanying text.

282. See *supra* notes 150–60 and accompanying text.

283. See *supra* note 5 and accompanying text.

care.²⁸⁴ Thus, it is logical to impute responsibility to a third party that played no role in the negligent act.²⁸⁵ Moreover, holding enterprises strictly and vicariously liable eliminates the need to reconcile contradictory and confusing statutes that attempt to define the obligations of individuals who operate or exert control over vehicles.²⁸⁶

The strict, vicarious nature of enterprise liability aligns with vehicle ownership statutes that hold owners vicariously liable for permissive drivers' negligence.²⁸⁷ The purpose of these statutes is to force financially responsible defendants to pay for innocent victims' injuries;²⁸⁸ the underlying principle is that an individual who entrusts an automobile to another has adequate resources to pay damages.²⁸⁹ Accordingly, there is a robust policy-based rationale applicable to self-driving vehicles when deep-pocketed TNCs dominate vehicle ownership, effectively functioning as ubiquitous leasing or rental companies.²⁹⁰

A strict and vicarious liability regime rooted in enterprise liability principles is justified because businesses involved in deploying networks of self-driving vehicles—whether characterized as ride-sharing, automotive, or technology companies—are situated to spread their losses efficiently.²⁹¹ This can be achieved by adjusting prices to reflect all costs, including the liability costs incurred from accidents.²⁹² By spreading losses, these businesses can adequately bear the burden of their operations.²⁹³ Additionally, by adjusting rates, these companies can remain profitable, thus allowing them to continue to operate and innovate.

2. No-Fault Insurance

Enterprise liability-like insurance regimes have been incorporated into workers' compensation, health care policies, and no-fault automobile plans.²⁹⁴ In the employment context, workers' compensation systems provide statutory remedies using a comprehensive scheme for compensating employees injured by employment-related accidents.²⁹⁵ The concept of workers' compensation is premised on the recognition that discarding tort liability in the employment relationship is desirable.²⁹⁶ Accordingly, workers' compensation statutes function as social insurance

284. *See supra* notes 223–29 and accompanying text.

285. *See supra* note 185 and accompanying text.

286. *See supra* notes 204–16 and accompanying text.

287. *See supra* notes 162–71 and accompanying text.

288. *See supra* note 167 and accompanying text.

289. *See supra* note 167 and accompanying text; *see also supra* note 184.

290. *See* Martin & Ryan, *supra* note 1 (predicting that TNCs' self-driving vehicles will “inundat[e] streets with drone cars”).

291. *See* Williams, *supra* note 179, at 204.

292. *See id.*

293. *See id.*

294. *See supra* note 160 and accompanying text.

295. *See* 82 AM. JUR. 2D *Workers' Compensation* § 1 (2016).

296. *See id.*

that shifts the burden of loss from the injured employee to the employer or industry.²⁹⁷

As workers' compensation has abolished fault-based liability for employers, no-fault automobile insurance should become the standard for self-driving vehicles. In no-fault systems, policyholders are limited in their right to sue negligent tortfeasors and may only sue when injuries reach certain thresholds.²⁹⁸ Theoretically, self-driving vehicles will be demonstrably safer than traditional automobiles.²⁹⁹ As accidents become uncommon and relatively minor, a system that disposes of the need for fault-based tort inquires will be appropriate. When severe accidents occur and injured parties are then able to meet lawsuit thresholds, it is more likely to implicate considerations outside of fault-based negligence like manufacturing or design defects.³⁰⁰ Products liability lawsuits will therefore remain available within the tort system.

Self-driving vehicle insurance should be characterized using no-fault rules that reflect the difficulties for courts in determining fault. Moreover, when a vehicle has no pedals, mirrors, or steering wheel, there is no need to determine the reasonableness, prudence, practicability, or due care in a driver's conduct.³⁰¹ Consequently, determining fault to apportion liability will become impractical. Under a vicarious liability system with corresponding no-fault insurance, TNCs—presumptively the insurance policyholders—will be best suited to bear an insurance burden that shifts liability from drivers to vehicles. When a system treats self-driving vehicles as insurable entities, “[t]he car becomes a separate insurable being that potentially provides a faster insurance payout to victims while protecting the owners from frivolous lawsuits.”³⁰²

Importantly, lawmakers must address several considerations. As TNCs continue to grow their business operations, regulations should clarify vehicle ownership definitions within the context of vicarious liability and how they apply to renters, lessees, and lessors.³⁰³ Likewise, legislatures need to refine what constitutes vehicle “operators” and the corresponding tort obligations for level 3–5 automated vehicles.³⁰⁴ Additionally, lawmakers need to address wide variation in states' automobile insurance regimes, as they present potential barriers to transportation development.³⁰⁵

This Note's solution addresses the three interrelated concerns mentioned above.³⁰⁶ First, it allows stakeholders to continue to develop self-driving

297. *See id.*

298. *See supra* notes 237–39 and accompanying text.

299. *See supra* note 1 and accompanying text.

300. *See* Marchant & Lindor, *supra* note 10, at 1323–24.

301. *See supra* notes 230–31 and accompanying text.

302. John Frank Weaver, *Robots Are People, Too*, SLATE (July 27, 2014, 9:45 PM), http://www.slate.com/articles/technology/future_tense/2014/07/ai_drones_ethics_and_laws_if_corporations_are_people_so_are_robots.single.html [<https://perma.cc/9HNQ-5L7H>].

303. *See supra* Part II.B.

304. *See supra* Part II.C.

305. *See supra* Part II.E.

306. *See supra* Part III.B.

technology and transportation networks in ways that benefit society while reducing costs arising from legal uncertainty. Second, although analogies are inevitably drawn, concerns relating to harsh early rules and “blaming the user” dynamics are mitigated because fault determinations take on less importance, and the insurance system already exists in some jurisdictions. Third, the solution attempts to create a simplified system that can be applied by courts and legislatures.

CONCLUSION

As modes of transportation and commuting patterns fundamentally transform, so too will laws that determine complex liability questions. The distant future is unavoidably difficult to predict and industry participants will continue to conceptualize new ideas for transportation. Nonetheless, this Note envisions the future of self-driving transportation and limited vehicle ownership.

New forms of transportation create uncertainty in applying tort law’s negligence standard to vehicle owners’ vicarious liability, vehicle operators’ duties of care, and corresponding insurance. While courts and legislators must be wary of the uncertainty in applying existing tort doctrine to new innovation, a solution lies in enterprise-liability-like theories of recovery—originally imagined for automobile liability—that incorporate principles of strict and vicarious liability coupled with no-fault insurance. This proposal creates a socially optimal outcome that appropriately spreads losses, compensates victims, establishes expectations, and encourages future innovation.