Self-Driving Cars and Torts: Determining Liability in a Twenty-First Century Car Accident

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I. INTRODUCTION

It is eight o'clock in the morning and time for Andrei to leave for work. He skips breakfast so that he has more time to sleep and enough time to get ready for work. This is not a problem for Andrei because he knows he can have breakfast on the road since he is not the one driving. Andrei calls "JUN" to come to the front of the house to pick him up because it is time to leave. The car arrives, and he enters the car and sits on the driver's seat. No one is inside the car, but a voice from the speaker says, "Good morning, sir! I am JUN, your autonomous vehicle; where is your destination today?" Andrei presses the button labeled "work." JUN says, "OK. Calculating the fastest route from Quezon City to Makati City... OK. Starting trip. Fastest route is through EDSA. Travel time is approximately forty-five minutes. Would you like to drive or shall I?" Andrei responds with "You drive." Thereafter, Andrei's car begins to move on its own. Finally, he now has time for breakfast. Throughout the duration of his trip, Andrei has breakfast and coffee. Having been so fixated on his meal and not once looking at the road, Andrei arrives at his point of destination and realizes that he left his wallet and his driver's license. However, it does not bother him because he realizes he does not really need anything from his wallet for today.

The day goes by and it is finally time to head home. Once again, Andrei calls JUN to pick him up at the front of the office. He enters the car and, this time, the destination he inputs is "home," and he engages the autonomous mode. It was one of those long and tiring days, and because the car was moving at such a relaxing pace, he fell asleep. Andrei is rudely awakened from his sleep by a whiplash. He notices that JUN collided with another car. The driver of the other car that JUN collided with is furious. He wants Andrei to pay for the damages. However, Andrei refuses to pay because it was JUN's fault and not his. A month later, Andrei is summoned to court. Andrei argues that someone else should be blamed and not him. Andrei, therefore, includes as party to the case the company that manufactures the car. Who should be held liable?

Artificial Intelligence is now everywhere.[1] More often than not, most of the various forms of artificial intelligence are not obvious to the normal person.[2] However, despite that, there are some forms of artificial intelligence that are known to everyone who have smart devices. A few of the well-known artificial intelligence systems are Siri, Google Now, and Amazon Echo. It has been predicted that, in 2019, a new kind of artificial intelligence will be known to the public — Self-driving Motor Vehicles.[3]

The car has come a long way from its inception. The first version of the car was created by Karl Freiderich Benz.[4] This version took the streets in 1885.[5] The arrival of the automobile did not only bring convenience to the people who made use of such, but the same also introduced the world to one of the most common reasons for death — automobile accidents.[6] In fact, in the same year Benz took his car for a public drive, the car crashed into a wall.[7] The earliest automobile accident dates back to at least 1869, depending on the definition of "automobile."[8] From that moment forward, automobile accidents have become prominent through the years. Various efforts have been taken by different people to lessen accidents or, at least, mitigate the damage caused by automobile accidents.[9] Through the years, manufacturers improved the automobile to further protect the driver. They made the exterior of cars tougher; they added seatbelts; and they placed airbags, among many other additions to the car from its first inception.[10] These

1. Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29 HARV. J. L. & TECH. 353, 358 (2016).

2. *Id.*

3. John Rosevear, Here's how soon you could be riding in a driverless car, *available at* http://www.businessinsider.com/heres-how-soon-you-could-be-riding-in-a-driverless-car-2017-12 (last accessed Feb. 29, 2020).

4. Michelle Marie F. Villarica, *The Case of the Autonomous Vehicle*, 61 ATENEO L.J. 759, 759-61 (2017) (citing Karl Benz, *available at* http://www.karlbenz.com/ (last accessed Feb. 29, 2020)).

5. *Id.*

6. Matt Soniak, When and Where Was the First Car Accident, *available at* http://mentalfloss.com/article/31807/when-and-where-was-first-car-accident (last accessed Feb. 29, 2020).

7. TED, Video, *Chris Urmson: How a driverless car sees the road*, June 26, 2005, YOUTUBE, *available at* https://www.youtube.com/watch?v=tiwVMrTLUWg (last accessed Feb. 29, 2020) [hereinafter Urmson].

8. Soniak, *supra* note 6.

9. Urmson, *supra* note 7.

10. *Id.*

improvements have lessened casualties in automobile accidents.[11] However, accidents still occur despite these improvements primarily because these improvements did not tackle one of the main causes of automobile accidents — human error.[12]

Based on research, the conduct of the driver on the road remains to be the major source of automobile accidents.[13] These generally arise due to the driver's negligence.[14] As summed up by Bryant Walker Smith, a member of the United States (U.S.) Department of Transportation's Advisory Committee on Automation in Transportation, more often than not, automobile accidents arise from "alcohol impairment, speeding, and driver distraction."[15] Driving under the influence is the cause of 31% of automobile accidents.[16] Driving over the speed limit is the cause of 28% of automobile accidents.[17] Lastly, distracted driving is said to be the cause of 10% of automobile accidents.[18] The number one reason for road accidents in the Philippines, according to the Metropolitan Manila Development Authority, is also human error.[19] Despite improvements made on the physical roads and additional road safety laws, at the end of the day, it is the driver's conduct on the road that leads to automobile accidents.[20] Hence, the only way to eradicate these causes is to completely eliminate human error from driving.[21] How will this be done? By automating motor vehicles.[22]

11. Villarica, *supra* note 4, at 762-63 (citing Bryant Walker Smith, *Automated Driving and Product Liability*, MICH. ST. L. REV. 1, 7-14 (2017)).

12. Smith, *supra* note 11, at 12.

13. *Id.*

14. *Id.*

15. *Id.*

16. *Id.* (citing U.S. Department of Transportation, National Highway Traffic Safety Administration, 2014 Crash Data Key Findings at 1, *available at* https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812219 (last accessed Feb. 29, 2020)).

17. Smith, *supra* note 11, at 14. (citing U.S. Department of Transportation, *supra* note 16, at 1).

18. *Id.*

19. Kimiko Sy, Human error: Leading cause of road mishaps in Metro Manila, *available at* https://www.rappler.com/move-ph/issues/road-safety/165556-road-crashes-causes-metro-manila-human-error (last accessed Feb. 29, 2020).

20. *Id.*

21. Villarica, *supra* note 4, 760-61 (citing Urmson, *supra* note 7).

22. Smith, *supra* note 11, at 15.

The concept of the self-driving motor vehicle has been lingering for some time now.[23] The goal of this technology is to eliminate or at least lessen accidents on the road.[24] This kind of technology is said to be safer because the goal of such is to eliminate driver error.[25] The self-driving car will now be driven by a computer program, or more commonly known as artificial intelligence, working together with various kinds of technology installed in order to collect information of the road ahead.[26] Hence, as an effect of such replacement, the most common types of human error which cause automobile accidents will be eliminated.[27] There will no longer be drunk drivers because a computer cannot get intoxicated, nor can there be sleepy drivers because a computer program does not get sleepy.[28] Neither will there be speeding because the artificial intelligence operating the vehicle can be programmed by the developer to obey the traffic laws.[29] Further, the driver can fool around with his electronic device and be distracted all he wants, and an accident will still not occur because said distracted driver will no longer be in control of the vehicle.[30] Also, as a bonus, especially in the Philippines where traffic is a problem, self-driving cars may improve road traffic.[31]

With that goal in mind, various tech companies have been working hard on developing a fully functional driverless car which can be ready to safely roam the streets.[32] The year 2016 was a big year for driverless cars.[33] In that

23. Villarica, *supra* note 4, at 761.

24. Smith, *supra* note 11, at 15.

25. *Id.*

26. *See* International Transport Forum of The Organisation for Economic Co-operation and Development, Automated and Autonomous Driving: Regulation under Uncertainty at 11, *available at* https://www.itf-oecd.org/sites/default/files/docs/15cpb_autonomousdriving.pdf (last accessed Feb. 29, 2020).

27. Villarica, *supra* note 4, at 761.

28. *See* Alissa Walker, Are self-driving cars safe for our cities?, *available at* https://www.curbed.com/2016/9/21/12991696/self-driving-cars-safety-usdot (last accessed Feb. 29, 2020).

29. *Id.*

30. *Id.*

31. Villarica, *supra* note 4, at 763.

32. Noah J. Goodall, *Ethical Decision Making During Automated Vehicle Crashes*, 2424 J. TRANSP. RES. BOARD 58, 60 (2014).

33. Wired, Video, *2016: The Year in Autonomous Drivin*g, Dec. 22, 2016, YOUTUBE, *available at* https://www.youtube.com/watch?v=W3-i5X8Wx1I (last accessed Feb. 29, 2020).

year, Google's version of the driverless car was able to reach a total mileage of two million.[34] In addition to this, Uber and Otto have begun testing their versions of the driverless cars on public roads.[35] Experts predicted that driverless cars will become part of society in 2018 with all the developments and with how fast technology moves nowadays.[36] However, 2016 was not only a year of success for driverless cars. During that same year, similar to what happened to Benz when he took the first car for a spin, the driverless car of Google met an accident.[37] This was the first accident of Google's driverless car where it was itself that caused it.[38]

This was followed by another controversial accident involving Tesla's version of the driverless car.[39] However, the latter was somewhat different. Unlike Google's driverless car, Tesla's version uses an autopilot feature which requires the person to keep his hand on the wheel.[40] This basically means that the driverless car is not fully autonomous and that the passenger and/or driver may tamper with the autonomy of the car. In the accident involving Tesla's car, it was found that the human driver sped up the vehicle beyond the speed limit of the autopilot computer program set by the developers which is said to have led to the accident.[41] The third known accident happened just recently in 2018. The accident, this time, involved Uber's self-driving car.[42] A woman was crossing a dark street when the Uber

34. *Id.*

35. *Id.*

36. Tom Parmenter, Driverless vehicle technology will go mainstream in 2018, experts claim, *available at* https://news.sky.com/story/driverless-vehicle-technology-will-go-mainstream-in-2018-experts-claim-11190426 (last accessed Feb. 29, 2020).

37. Chris Isidore, Google's self-driving car at fault in accident, *available at* http://money.cnn.com/2016/02/29/autos/google-self-driving-car-accident/index.html (last accessed Feb. 29, 2020).

38. *Id.*

39. Brian Fung, The driver who died in a Tesla crash using Autopilot ignored at least 7 safety warnings, *available at* https://www.washingtonpost.com/news/the-switch/wp/2017/06/20/the-driver-who-died-in-a-tesla-crash-using-autopilot-ignored-7-safety-warnings/?Utm_term=.4787bf7fab73 (last accessed Feb. 29, 2020).

40. *Id.*

41. *Id.*

42. CBS News, Tempe, Arizona, police release footage from deadly crash involving self-driving Uber, *available at* https://www.cbsnews.com/news/tempe-arizona-police-release-footage-deadly-crash-self-driving-uber/ (last accessed Feb. 29, 2020).

self-driving vehicle collided with her.[43] The accident lead to the first casualty involving a fully autonomous self-driving car.[44] In fact, the investigation by the police revealed that the casualty was impossible to avoid.[45] This just goes to show that, despite the elimination of human error, automobile accidents cannot be fully eliminated.[46]

Though self-driving motor vehicles are said to make the streets safer, accidents are bound to happen.[47] These accidents could occur due to software or hardware defects in the car. In addition to these, behavior of other human drivers on the streets, fortuitous events, or other factors the computer program cannot control can also lead a driverless car into an accident[48] (similar to what happened in the Google self-driving motor vehicle accident).[49] Another cause that could also lead a self-driving car into an accident is when the passenger or driver tampers with the program or takes control of the self-driving car and causes the accident to oneself.[50] These are things that cannot be eradicated by self-driving car technology.[51] With that said, this is where things get more complicated. When a self-driving car gets into an accident, who is at fault?

It is common that, after a normal car accident occurs, someone should be held responsible for the damage done.[52] This is determined by the circumstances of the accident and the governing law. Currently, in the U.S., the law governing automobile accidents do not cover cars driven by computers.[53] In which case, the person responsible is simply the person who caused the accident.[54] However, in addition to this, another person can be

43. Everett Rosenfeld, Tempe police release video of deadly Uber accident, *available at* https://www.cnbc.com/2018/03/21/uber-pedestrian-accident-tempe-police-release-video.html (last accessed Feb. 29, 2020).

44. CBS News, *supra* note 42.

45. *Id.*

46. Goodall, *supra* note 32, at 60.

47. *See* Goodall, *supra* note 32, at 60.

48. *Id.*

49. Isidore, *supra* note 37.

50. Fung, *supra* note 39.

51. Goodall, *supra* note 32, at 61.

52. *See* Richard A. Posner, *A Theory of Negligence*, 1 J. LEGAL STUDIES 29, 33 (1972).

53. Aarian Marshall, Congress Unites (*Gasp*) to Spread Self-Driving Cars Across America, *available at* https://www.wired.com/story/congress-self-driving-car-law-bill (last accessed Feb. 29, 2020).

54. F. Patrick Hubbard, Regulation of and Liability for Risk of Physical Injury from "Sophisticated Robots" (A Paper for Presentation as a Work-in-Progress

held liable — the manufacturer of the automobile.[55] In these cases, the owner of the vehicle will not be liable if the accident was caused due to a "manufacturing defect" and, instead, the manufacturer shall be responsible.[56] These, however, change when what is involved in the accident is a self-driving car where the one driving is not a human person.[57] Common sense dictates that it would be unfair to hold a passenger, driver, or owner of a driverless car responsible for an act he or she had no control over. Knowing this, various states in the U.S. have passed laws to regulate the use or testing of driverless cars on the road which provide an easier means to determine responsibility.[58] Finally, in 2017, due to the rapid growth of driverless cars, the U.S. Congress finally passed a nationwide law — the Self-Drive Act — which provides guidelines for regulating driverless cars,[59] showing that the country has accepted driverless cars.[60]

The same, however, cannot be said about the Philippines. The Philippines currently has no law governing or regulating artificial intelligence. The current framework governing automobile accidents holds the driver or owner of the vehicle at fault responsible for any accident that should occur.[61] However, in a situation involving a self-driving car, where there is no fault on the part of the driver or the owner because said driver or owner has no control over the vehicle, holding the driver or owner liable would be unfair.[62] In the same light, the law currently punishes the employer of a driver driving a vehicle if said driver gets into an accident or if, being in the vehicle alongside the driver, fails to prevent the accident.[63] However, though there is a driver driving on behalf of the employer, the same is not human. It is also not recognized yet by the law, cannot be subject to any suit either by the victim or even by the owner of the vehicle.[64] An easy way to solve such issue is to make the manufacturer or

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at We Robot Conference University of Miami School of Law) at **1, 7, & 17, *available at* http://robots.law.miami.edu/wp-content/uploads/2012/01/Hubbard_Sophisticated-Robots-Draft-1.pdf (last accessed Feb. 29, 2020).

55. *Id.* at 18.

56. *Id.*

57. Scherer, *supra* note 1, at 356.

58. Marshall, *supra* note 53.

59. *Id.*

60. *Id.*

61. An Act to Ordain and Institute the Civil Code of the Philippines [CIVIL CODE], Republic Act No. 386, arts. 2180 & 2184 (1950).

62. *See* Villarica, *supra* note 4, at 775.

63. CIVIL CODE, arts. 2180 & 2184.

64. Villarica, *supra* note 4, at 776.

developer of the computer program liable.[65] This is pretty straightforward because using the current liability framework, the person who causes the accident should be responsible. Since accidents involving self-driving cars will be caused by a computer program under the control of the manufacturer or developer, the latter should be held responsible.[66] However, this will be a problem in terms of the development of technology in the country and prevent manufacturers or developers from bringing the technology into the Philippines.[67] Another problem with respect to holding a manufacturer or developer liable is in a situation where the computer program gets into an accident but said program acted in the same manner, or better than, an ordinary person would have acted if placed in the exact same situation.[68] It would then be unfair to hold the manufacturer or developer liable or equally liable as a normal person in said situation.

Unlike the U.S., the Philippines has not enacted any law that will regulate the use, or even the testing of, self-driving cars. With such technology being right around the corner, it is time to start preparing for their arrival.[69] Absent any law, the question now is: who or what should be held responsible when an accident does occur involving self-driving cars? This will be a difficult question to answer because, as mentioned above, applying the current liability framework would be unfair to parties involved in the accident. Hence, it is necessary to determine who or what should be responsible when the situation finally arises and make sure there is a fair determination of responsibility to ensure innovation and justice.

This Note aims to determine who should be liable in a self-driving car accident and what framework should be used to determine such liability. The Note will start by providing a concrete definition of a self-driving car to be used in the Philippine context. Subsequently, the current law governing such accidents shall be provided. The reasons, in detail, as to why they will not be applicable shall follow. Thereafter, the Note will enumerate the existing legislation involving self-driving cars of other countries. Said laws, then, shall be used as a framework and basis for possible legislation for our country. Lastly, the Note will end with the Author's recommendation to

65. *Id.* at 777.

66. *Id.*

67. *Id.* at 779 (citing Paula Herbig & James Golden, *Innovation and Product Liability*, 23 INDUS. MKT. MGMT. 245, 246 (1994)).

68. Marshall, *supra* note 53.

69. Mayvelin U. Caraballo, MANILA TIMES, *PH needs new framework for driverless cars*, Mar. 28, 2017, *available at* http://www.manilatimes.net/ph-needs-new-framework-driverless-cars/319581 (last accessed Feb. 29, 2020).

address the current inadequacies of our liability framework and determine who is liable.

This Note shall be limited to a discussion on the liability in situations involving an accident caused by a privately-owned self-driving car while on "autonomous mode" or "autopilot mode." The Note will focus on self-driving cars in the Philippine context and its governing liability framework. Given that the discussion will revolve around self-driving cars, it will be limited only to self-driving cars and shall not involve other forms of artificial intelligence.

The Note will also focus on local laws, law journals, and laws of foreign countries. This is because this kind of technology is new to the world, and the Philippines has not yet taken any measures to address this kind of technology. Moreover, there is no jurisprudence with respect to any kind of similar technology. It will focus on law journals and laws of countries whose liability frameworks are analogous to the Philippines.

Further, this Note will rely heavily on Civil Code provisions and special laws that govern motor vehicle accidents and how these apply to self-driving cars.

II. THE CONCEPT OF A SELF-DRIVING CAR

A. What is a Self-Driving Car?

In order to fully grasp the liability issues that may arise with self-driving cars, one must first understand the concept of a self-driving car and how it works. A self-driving car is basically a fusion between a conventional car and a computer or, to be more specific, artificial intelligence. The combination of the two allows the car to drive itself. The self-driving car is a conventional car equipped with various forms of hardware, technology, and software.[70]

The technology consists of computers, software, and sensor components which are all interconnected with each other.[71] Those three components work hand-in-hand with each other to operate the car as if the latter is being driven by a human driver.[72] The sensing hardware assesses the surroundings of the car and collects information to be sent to the computer.[73] The computer will use the collected information to operate the car and move it

70. International Transport Forum of The Organisation for Economic Co-operation and Development, *supra* note 26, at 11.

71. Kyle Colonna, *Autonomous Cars and Tort Liability*, 4 CASE W. RES. J. L. TECH. & INT. 81, 86 (2012).

72. *Id.* at 87.

73. *Id.*

in accordance with its surroundings.[74] Self-driving cars also make use of global positioning systems (GPS) to assist in its journey, which a majority of cars have nowadays.[75] With this interconnection between cars and computers, a car is able to achieve its "self-driving" status.[76]

B. Levels of Automation

The term "self-driving" does not mean that the car fully functions on its own. The "self-driving" status comes in various forms or — as labeled by the National Highway Traffic Safety Administration (NHTSA) of the U.S. — "levels."[77] The NHTSA established that there are five "levels" of automation when it comes to self-driving cars.[78] The "levels" are as follows:

> *Level* 0 – *No-Automation*. The driver is in complete and sole control of the primary vehicle controls (brake, steering, throttle, and motive power) at all times, and is solely responsible for monitoring the roadway and for safe operation of all vehicle controls. Vehicles that have certain driver support/convenience systems but do not have control authority over steering, braking, or throttle would still be considered 'level 0' vehicles. Examples include systems that provide only warnings (e.g., forward collision warning, lane departure warning, blind spot monitoring) as well as systems providing automated secondary controls such as wipers, headlights, turn signals, hazard lights, etc. ... .
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> *Level* 1 – *Function-specific Automation*: Automation at this level involves one or more specific control functions; if multiple functions are automated, they operate independently from each other. The driver has overall control, and is solely responsible for safe operation, but can choose to cede limited authority over a primary control (as in adaptive cruise control), the vehicle can automatically assume limited authority over a primary control (as in electronic stability control), or the automated system can provide added control to aid the driver in certain normal driving or crash-imminent situations (e.g., dynamic brake support in emergencies). The vehicle may have multiple capabilities combining individual driver support and crash avoidance technologies, but does not replace driver vigilance and does not

74. *Id.*

75. *Id.*

76. Dorothy J. Glancy, *Autonomous and Automated and Connected Cars—Oh My! First Generation Autonomous Cars in the Legal Ecosystem*, 16 MINN. J. L. SCI. & TECH. 619, 634 (2015).

77. *Id.* at 630.

78. National Highway Traffic Safety Administration, Preliminary Statement of Policy Concerning Automated Vehicles at 4, *available at* https://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf (last accessed Feb. 29, 2020).

> assume driving responsibility from the driver. The vehicle's automated system may assist or augment the driver in operating one of the primary controls either steering or braking/throttle controls (but not both) ... .
>
> *Level* 2 – *Combined Function Automation*: This level involves automation of at least two primary control functions designed to work in unison to relieve the driver of control of those functions. Vehicles at this level of automation can utilize shared authority when the driver cedes active primary control in certain limited driving situations. The driver is still responsible for monitoring the roadway and safe operation and is expected to be available for control at all times and on short notice. The system can relinquish control with no advance warning and the driver must be ready to control the vehicle safely ... .
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> *Level* 3 – *Limited Self-Driving Automation*: Vehicles at this level of automation enable the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions and in those conditions to rely heavily on the vehicle to monitor for changes in those conditions requiring transition back to driver control. The driver is expected to be available for occasional control, but with sufficiently comfortable transition time. The vehicle is designed to ensure safe operation during the automated driving mode. An example would be an automated or self-driving car that can determine when the system is no longer able to support automation, such as from an oncoming construction area, and then signals to the driver to reengage in the driving task, providing the driver with an appropriate amount of transition time to safely regain manual control. The major distinction between level 2 and level 3 is that at level 3, the vehicle is designed so that the driver is not expected to constantly monitor the roadway while driving.
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> *Level* 4 – *Full Self-Driving Automation* [ ]: The vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. Such a design anticipates that the driver will provide destination or navigation input, but is not expected to be available for control at any time during the trip. This includes both occupied and unoccupied vehicles.[79]

The NHTSA is not the only organization to provide levels of automation for self-driving cars. The SAE International (SAE) also provided their own version of the levels of automation for self-driving cars.[80] Similar to NHTSA's, the levels defined by SAE are based on the amount of human intervention and autonomy of technology involved in the self-driving car.[81]

79. *Id.* at 4–5.

80. *See* SAE International, Automated Driving: Levels of Driving Automation are Defined in a New SAE International Standard, *available at* https://www.sae.org/news/2019/01/sae-updates-j3016-automated-driving-graphic (last accessed Feb. 29, 2020).

81. *Id.*

Further, for purposes of defining their levels, the SAE broke down the act of driving into two parts — *driving mode* and *dynamic driving tasks*.[82] *Dynamic driving* tasks refer to the driving proper which is, basically, all acts of operating and driving a car.[83] *Driving mode*, on the other hand, refers to a more specific driving situation like slowing down, changing lanes, merging with traffic, and the like.[84] The levels defined by SAE International are as follows: No Automation, Driver Assistance, Partial Automation, Conditional Automation, High Automation, and Full Automation.[85] The SAE further subdivides the six levels into two groups. The two groups are based on who is tasked with monitoring the environment.[86] The first three levels are those whereby the human is still tasked with monitoring the vehicle's surroundings.[87] The latter three levels are those whereby the automated driving system is the one monitoring its own surroundings.[88]

Given the two different sets of levels enumerated by two different organizations, the Author believes that the levels can be summarized into three groups — no automation or conventional driving, semi-automation, and full automation. For purposes of this Note, focus shall be placed on these three summarized levels of automation.

It is crucial to know the level of automation involved because it is important in recognizing the conflict in the laws that will govern liability in certain situations; and subsequently, in determining who should be held liable. Further, for this Note, the focus will be on semi-automation and full automation only. Unlike in cases involving partial and full automation, in no automation or conventional driving, there is nothing new, and the current tort laws are designed to cover human driven car accidents.

Full Automation, for this Note, shall encompass self-driving cars where the driver or owner does not control how the car operates, except for the place of destination, and merely rides the car. On the other hand, Semi-Automation shall encompass self-driving motor vehicles whereby the owner or driver controls one aspect of driving (i.e., maneuvering, brakes, acceleration, parking) and those Full Automation self-driving cars where the owner or driver can take control of the entire vehicle whenever he/she pleases. In the Philippines, there has currently been no testing of fully

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

86. SAE International, *supra* note 80.

87. *Id.*

88. *Id.*

automated motor vehicles. However, there are partially automated vehicles that have been sold already in the Philippines.[89] Ford Philippines has been selling vehicles with self-parking capabilities.[90]

C. How Semi-Autonomous Self-Driving Cars Work

As mentioned, self-driving technology is a general term. Simply labeling something as self-driving does not mean the car will no longer need a human. The levels of driving automation establish this fact.[91] Aside from the levels of driving automation, self-driving vehicles are divided into Semi-Autonomous and Fully Autonomous because the two are not the same.[92]

Semi-autonomous vehicles are generally those within levels two to three under the SAE Standard.[93] To illustrate, the perfect example of this is the Tesla S and its autopilot mode.[94] The vehicle is equipped with a radar in the front that detects objects ahead of it.[95] This is supplemented by "ultra-sonic sensors" around the vehicle which do the same thing except detect objects around the vehicle and within a closer range.[96] There is also another camera in the front of the vehicle to aid the forward radar.[97] The vehicle also has a GPS in order for the vehicle to know its position.[98] All of these aid in the autopilot function.

89. Dinzo Tabamo, Ford's hand-free parking is a joy to use, *available at* https://www.topgear.com.ph/features/feature-articles/ford-focus-perpendicular-parking-a00012-20170507 (last accessed Feb. 29, 2020).

90. *Id.*

91. SAE International, *supra* note 80 & National Highway Traffic Administration, *supra* note 78.

92. John Greenough, THE SELF-DRIVING CAR REPORT: Forecasts, tech timelines, and the benefits and barriers that will impact adoption, *available at* https://www.businessinsider.com/the-self-driving-car-report-2015-5 (last accessed Feb. 29, 2020).

93. SAE International, *supra* note 80.

94. Matt Burgess, When does a car become truly autonomous? Levels of self-driving technology explained, *available at* https://www.wired.co.uk/article/autonomous-car-levels-sae-ranking (last accessed Feb. 29, 2020).

95. WIRED, Video, *How Tesla's Self-Driving Autopilot Actually Works | WIRED*, Aug. 17, 2016, YOUTUBE, *available at* https://www.youtube.com/watch?v=AiOxUcDgsa8 (last accessed Feb. 29, 2020).

96. *Id.*

97. *Id.*

98. *Id.*

The autopilot function can be activated while on park or while driving.[99] One very important thing to note is that the vehicle will notify the driver twice that he or she must keep your hands on the wheel.[100] This reinforces the fact that the driver is still in control or responsible even though the vehicle is technically operating through self-driving technology. In fact, Elon Musk, the mind behind Tesla, stated that people should understand the difference between autonomous driving and autopilot.[101] The autopilot technology still assumes there is a person operating and monitoring the vehicle.[102] He said that the company will make it clear that the driver or owner is still the one responsible for monitoring the vehicle.[103]

This will be the case for most semi-autonomous self-driving cars. It should be understood that merely labeling a motor vehicle as self-driving does not mean the driver is free to take his or her hand off the wheel or even sleep just yet. Generally, these vehicles will be equipped with warning features that will either tell the owner that he or she must take control or that the self-driving function should not be activated.[104] The fourth level of driving automation has a safety precaution should the driver fail to intervene.[105] The purpose of these kinds of automation is mostly to aid the driver.[106] However, people do not understand this concept.[107] The users of this kind of technology assume that they are already free to let the vehicle do everything.[108] Thus, it is important to understand the difference between semi-autonomous and fully autonomous.

In summary, semi-autonomous self-driving vehicles are those vehicles that still require human monitoring or human intervention.

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99. *Id.*

100. *Id.*

101. Bloomberg, Video, *Elon Musk on Tesla's Auto Pilot and Legal Liability*, Oct. 10, 2014, YOUTUBE, *available at* https://www.youtube.com/watch?v=60-b09XsyqU (last accessed Feb. 29, 2020).

102. *Id.*

103. *Id.*

104. *Id.*

105. Michael Krauss, What Should Tort Law Do When Autonomous Vehicles Crash?, *available at* https://www.forbes.com/sites/michaelkrauss/2017/04/07/what-should-tort-law-do-when-autonomous-vehicles-crash/#505bb182181c (last accessed Feb. 29, 2020).

106. Greenough, *supra* note 92.

107. *Id.*

108. *Id.*

D. How Fully Autonomous Self-Driving Cars Work

On the other hand, a fully autonomous self-driving car will have more technology components. Fully Autonomous self-driving cars are on the fifth and highest level of the driving automation.[109] At this level of automation, the human need not pay attention to the road at all.[110] The human will have no control over the vehicle except as to turning it on and inputting its destination.[111] In fact, this vehicle may or may not even have a steering wheel.[112] An example of these are the vehicles of Waymo and Uber.[113]

Fully autonomous vehicles have most of the technology used by a semi-autonomous vehicle with a few additions. The fully autonomous vehicles use a Lidar (Light Detection and Ranging).[114] This is the peculiar spinning R2-D2 looking device found on the roof of such vehicles. The same device is supplemented by other sensors and radars.[115] The two work together to give the computer a more precise idea of its location and surroundings.[116] It also has a camera that detects colors to inform the vehicle that it is approaching a stoplight and its corresponding color.[117] In addition to this, it has other cameras to detect other objects the vehicle needs to detect.[118] All of these, working jointly, are what can make the self-driving vehicle safer than human-driven vehicles.[119]

109. SAE International, *supra* note 80.

110. Isabel Harner, The 5 Autonomous Driving Levels Explained, *available at* https://www.iotforall.com/5-autonomous-driving-levels-explained (last accessed Feb. 29, 2020).

111. Krauss, *supra* note 105.

112. Harner, *supra* note 110.

113. *See* TechInsider, Video, *How Uber's Self-Driving Cars Work*, Sep. 22, 2016, YOUTUBE, *available at* https://www.youtube.com/watch?v=fv4OcBWYc1k (last accessed Feb. 29, 2020) & Waymo, Video, *Waymo's fully self-driving cars are here*, Nov. 7, 2017, YOUTUBE, *available at* https://www.youtube.com/watch?v=aaOB-ErYq6Y (last accessed Feb. 29, 2020).

114. TheHUB, Video, *How Do Self-Driving Cars Actually Work? (Tesla, Volvo, Google)*, Nov. 17, 2017, YOUTUBE, *available at* https://www.youtube.com/watch?v=xMH8dk9b3yA (last accessed Feb. 29, 2020).

115. *Id.*

116. *Id.*

117. TechInsider, *supra* note 113.

118. *Id.*

119. *Id.*

E. The Purpose of Self-Driving Cars

As mentioned above, the purpose of the development of the self-driving car technology is to eliminate the number one cause of car accidents — human drivers.[120] The self-driving car aims to completely eliminate driving under the influence, distractions, and traffic violations by taking out the human from the act of driving.[121] However, this is not to say that human intervention is completely eliminated.[122] The self-driving car simply takes out the human from the act of driving and is replaced by a computer that makes decisions based on an algorithm made by a human, also known as artificial intelligence.[123] Thus, the human involvement is not completely eliminated. Self-driving cars are presumed to be safer than cars driven by humans.[124] However, just because these cars are safer does not mean that accidents are completely eradicated.[125] Given the vast components of a vehicle,[126] a crash may still occur due to a malfunction or the deterioration of any component.[127] Thus, though it may solve the problem of car safety by lessening car accidents caused by human drivers,[128] a more complicated problem arises when an accident occurs involving self-driving cars due to the multitude of components and parties connected with it.[129]

F. Parties Involved in a Self-Driving Car Accident

As mentioned above, the introduction of self-driving cars, though beneficial to the public, will complicate things for lawyers. In conventional driving, when an accident occurs, liability is determined by looking at the driver of the vehicle, the owner, the injured party; and, in some cases — the manufacturer of the vehicle.[130] However, now, there is more to it.[131] As

120. Smith, *supra* note 11, at 11-14.

121. *Id.*

122. Villarica, *supra* note 4, at 766 (citing Goodall, *supra* note 32, at 59).

123. *Id.*

124. Smith, *supra* note 11, at 15.

125. Goodall, *supra* note 32, at 59.

126. *See* Guilbert Gates, The Race for Self-Driving Cars, *available at* https://www.nytimes.com/interactive/2016/12/14/technology/how-self-driving-cars-work.html?_r=0 (last accessed Feb. 29, 2020).

127. Goodall, *supra* note 32, at 61.

128. Smith, *supra* note 11, at 18.

129. *Id.* at 45.

130. Gary E. Marchant & Rachel A. Lindor, *The Coming Collision Between Autonomous Vehicles and the Liability System*, 52 SANTA CLARA L. REV. 1321, 1326 (2012).

131. Smith, *supra* note 11, at 45.

mentioned, the self-driving car involves a network of technology, hardware, software, and other car components.[132] By reason of such, there are more people involved when an accident occurs depending on the reason of the car accident.[133] The possible parties involved are hereinafter discussed.

1. Drivers and Owners

The Civil Code provides that "[w]hoever by act or omission causes damage to another, there being fault or negligence, is obliged to pay for the damage done."[134] Thus, similar to conventional cars, in case there is an accident involving self-driving cars, the person driving it or having control over the latter will be held responsible for the accident. Further, the Civil Code also provides additional provisions to hold the owner liable. First, the owner can be liable for acts committed by their employees or those under their control.[135] The self-driving motor vehicle that suffered an accident, being under the control of the owner, can make the owner a party to the accident. Second, another provision in the Civil Code provides that "in motor vehicle mishaps, the owner is solidarily liable with his or her driver, if the former, who was in the vehicle, could have, by the use of the due diligence, prevented the misfortune."[136] For this instance, when a self-driving car, specifically a semi-autonomous one, gets into a mishap with the owner in the vehicle and having the ability to take control of the vehicle.[137] In summary, the owner is a party when his or her self-driving car gets into an accident simply because he or she is the owner of the vehicle and is an interested party.

2. Passengers

A passenger can also be a party to a self-driving accident. He or she can be a party if, in the course of the voyage, he or she gets injured. This is similar to what happens to passengers that get injured in an accident involving conventional cars.[138]

132. Colonna, *supra* note 71, at 86.

133. Smith, *supra* note 11, at 45.

134. CIVIL CODE, art. 2176.

135. *Id.* art. 2180, para. 4-5.

136. *Id.* art. 2184.

137. *Id.*

138. *See* CIVIL CODE, art. 2176.

3. Manufacturers

Just like conventional cars, the manufacturer of said parts shall be held liable when there is an accident caused by a defect in any of the parts he or she manufactured.[139] This is obvious because the manufacturer is the cause of the accident. Hence, when a self-driving car gets into an accident due to a defective car part (i.e., wheels, suspension, brakes), the law automatically makes the manufacturer of the component liable. This group includes both the car manufacturer as well as the manufacturer and supplier of its component parts.

4. Software or Computer Programmer

This is where the conventional car differs from self-driving cars when it comes to parties involved in an accident. As mentioned, the self-driving car will utilize a computer program to compile all the information gathered by the car's hardware and, using the information gathered, assess the driving circumstances and move the car accordingly.[140] Further, it is worth mentioning that when a self-driving car gets into an accident, the decisions of the self-driving car leading to the accident were all designed and determined by the person who programmed the software.[141] Therefore, if there is a defect or a malfunction in the program that caused the accident, the software or computer programmer becomes a party to the accident.[142]

5. Victims

Victims are also a party to a self-driving car accident. The victim, or the injured party, in accidents involving a self-driving car is no different from the victim in a conventional car accident. Thus, the "victim" is a party in a self-driving car accident because he or she may claim compensation for the damages he or she suffered.[143]

6. Third Parties

Aside from the abovementioned, a person who has no involvement or no connection with the self-driving car can also be a party to a self-driving car accident. It goes without saying that, no matter how safe or how smart a self-driving car is, the self-driving car can still get into accidents.[144] The self-

139. Marchant & Lindor, *supra* note 130, at 1329.

140. Colonna, *supra* note 71, at 86.

141. Goodall, *supra* note 32, at 62.

142. Marchant & Lindor, *supra* note 130, at 1328.

143. CIVIL CODE, art. 2176.

144. Goodall, *supra* note 32, at 61.

driving car can also be the victim, especially in an accident caused by the negligence of a human driver.[145] Thus, in such situations, it is submitted that third parties are also parties to a self-driving car accident.

III. Current Laws Governing Responsibility for Motor Vehicle Accidents

A. Quasi-Delicts

When it comes to motor vehicle accidents, the main law used to determine one's liability is the Civil Code, specifically, its chapter on Quasi-Delicts.[146] In determining who should be liable, Article 2176 of the Civil Code generally pins liability on the person that caused the damage.[147] It provides that "[w]hoever by act or omission causes damage to another, there being fault or negligence, is obliged to pay for the damage done."[148] However, there are instances, provided in the Civil Code, whereby a person, other than the one who is at fault in a motor vehicle accident, is also held liable. The Civil Code provides that, in cases where the person driving is not the owner, the employer of the driver can be held liable for the fault or negligence of the latter.[149] In addition, the Civil Code provides that "in motor vehicle mishaps, the owner is solidarily liable with his driver, if the former, who was in the vehicle, could have, by the use of the due diligence, prevented the misfortune."[150] Thus, in motor vehicle accidents, the Civil Code can hold the driver, or the owner, liable as long as there is fault or negligence involved in the driving of the car.

B. Product Liability

The Philippine Constitution mandates the State to ensure that consumers are protected from the sale of subpar and dangerous products and fraudulent business practices.[151] Thus, there are laws that impute liability on manufacturers and sellers of motor vehicles, especially when the injury was caused by a product defect. The damage caused by product defects cannot be imputed on the owner or driver because they had no control over the manufacturing of the vehicle. It would be unfair to hold an innocent purchaser of a product liable for its defects when said product was made be

145. *Id.*

146. *See* CIVIL CODE, arts. 2176–2194.

147. CIVIL CODE, art. 2176.

148. *Id.*

149. *Id.* art. 2180.

150. *Id.* art. 2184.

151. PHIL. CONST. art. XVI, § 9.

somebody else. Thus, the owner or driver cannot be held liable. In such cases, there are laws that impute liability on the manufacturer or seller on the basis of warranties, negligence, strict liability, and misrepresentation or fraud.[152] The following are product liability laws applicable in a motor vehicle accident caused by a product defect.

1. Quasi-Delicts

The provisions on quasi-delicts may be used to make manufacturers responsible for damage caused by their defective products.[153] The same provision that holds a negligent driver, or owner, liable for the damage caused is the same provision that makes the manufacturer liable for the damage caused by the defective product.[154] Again, the provision provides that anyone who negligently or faultily does something that causes damage to another is liable to the latter.[155] Liability is imputed as long as there is negligence. The provision does not distinguish as to the type of acts or negligence. Thus, it is deemed broad enough to cover actions due to product defects.[156] In fact, according to jurisprudence, damage caused by defective products could be based on negligence.[157] The liability will arise if it is found that there was negligence or lack of care in the production of the defective product.[158] Thus, should a motor vehicle accident occur, the owner-buyer can bring an action against the seller or manufacturer under Article 2176 for any damage caused by the defective product.[159]

2. Warranties

The Civil Code defines a warranty as "[a]ny affirmation of fact or any promise by the seller relating to the thing is an express warranty if the natural tendency of such affirmation or promise is to induce the buyer to purchase the same, and if the buyer purchases the thing relying thereon."[160] It covers any statement made by the seller in his expert capacity which influence the

152. TIMOTEO B. AQUINO, TORTS AND DAMAGES 761-67; 770-74; & 778-80 (2d ed. 2005).

153. *Id.*

154. *See* CIVIL CODE, art. 2176.

155. CIVIL CODE, art. 2176.

156. Coca-Cola Bottlers Philippines, Inc. v. Court of Appeals, 227 SCRA 292, 299 (1993).

157. *Id.* (citing 63 AM. JUR. 2d *Products Liability* § 25).

158. AQUINO, *supra* note 152, at 770.

159. *Coca-Cola Bottlers Philippines, Inc.*, 227 SCRA at 299.

160. CIVIL CODE, art. 1546.

buyer to purchase the product of the seller.[161] The provisions on warranty make the seller responsible for any latent defects that make the product unusable, diminish its fitness for the use for which it is intended, or decrease its capabilities in such a way that the buyer would not have purchased it, or would have purchased it at a discounted price, if he had known of such defects.[162]

In such cases, the remedy of the buyer would be to either withdraw from the contract or request for a lower price.[163] In either case, the buyer can claim for damages.[164] Thus, the owner or driver of a defective car may claim damages from the seller of the car should a motor vehicle accident occur due to a defect in the car.

3. Fraud

A seller or manufacturer may also be held liable for damages caused by a defective product on the basis of fraud or misrepresentation under the Civil Code.[165] Product liability based on fraud is similar to product liability under warranties. A seller or manufacturer is liable if he/she knowingly made a false representation of fact which induced the buyer to purchase the product and the buyer suffered damages because of the misrepresentation.[166] Thus, if the owner or driver of a motor vehicle suffers a car accident due to a defective part, he/she may claim damages from the seller or manufacturer on the basis of fraud. The misrepresentation being that the seller was assured that the motor vehicle came with no defects (when in fact it did).

4. Philippine Lemon Law

The Philippine Lemon Law, a fairly recent law, presents car buyers with remedies in various cases of defects.[167] The purpose of this law is to protect consumers from business or trade malpractices when it comes to the sale of motor vehicles.[168] The law covers any motor vehicle which is defined as "any self-propelled, four (4) wheeled road vehicle designed to carry

161. *Id.*

162. CIVIL CODE, art. 1561.

163. *Id.* art. 1567.

164. *Id.*

165. AQUINO, *supra* note 152, at 761.

166. *Id.* at 594 (citing CATHERINE ELLIOT & FRANCES QUINN, TORT LAW 69 (1996 ed.)).

167. *See* An Act Strengthening Consumer Protection in the Purchase of Brand New Motor Vehicles [Philippine Lemon Law], Republic Act No. 10642 (2014).

168. *Id.* § 2.

passengers[.]"[169] Under the law, a buyer is entitled to remedies in case of a non-conforming or defective car provided that the car and the defect do not fall within the exceptions provided.[170] The law provides that a purchaser of a vehicle may seek repairs for his car should the same not conform to normal standards.[171] Further, the law allows a buyer to file a case with the Department of Trade and Industry (DTI) should the vehicle still not conform with the vehicle standards despite four attempts to repair it, and after legal formalities have been complied with.[172] The buyer's remedies are replacement of the non-conforming car or a refund plus collateral charges should the DTI rule in favor of the buyer, the latter's remedies are replacement of the non-conforming car or a refund plus collateral charges.[173]

Based on the foregoing, it is submitted that the buyer is entitled to have his motor vehicle repaired if the car should get into an accident caused by non-conformity or defect in the car. However, the law is silent with respect to damages arising from injuries caused by product defects.[174]

C. Judicial Doctrines

In determining liability, the courts do not solely rely on the Civil Code. The courts may use established judicial doctrines to determine liability. The doctrines applied to motor vehicle accidents are discussed below.

1. Proximate Cause

The cause which "in the natural and continuous sequence, unbroken by any efficient intervening cause, produces the injury and without which the result would not have occurred" is the proximate cause.[175] It is one of the three elements needed to hold a person liable for quasi-delicts.[176] The person claiming the damage must show that the injury was caused by the negligence of another.[177] It is dependent on the circumstances of the case and is determined by logic and common sense.[178] The proximate cause is what is

169. *Id.* § 3 (j).

170. *Id.* § 4.

171. *Id.* § 5.

172. *Id.* §§ 6-7.

173. Philippine Lemon Law, § 8.

174. *See* Philippine Lemon Law.

175. Vda. de Bataclán, et al. v. Medina, 102 Phil. 181, 186 (1957) (citing 57A AM. JUR. 2d *Negligence* § 413).

176. AQUINO, *supra* note 152, at 259.

177. *Id.* at 260.

178. American Express International, Inc. v. Cordero, 473 SCRA 42, 48 (2005).

looked at in motor vehicle accidents in order to determine who was the cause of the accident and is ultimately liable.

2. Negligence

It is known that liability is generally imputed to the party to the accident who was negligent or at fault.[179] The Civil Code defines negligence as the "omission of that diligence which is required by the nature of the obligation and corresponds with the circumstances of the persons, of the time and of the place."[180] The courts established a test to aid in determining who was negligent, the courts established a test.[181] When faced with a motor vehicle accident, a court asks "[d]id the defendant in doing the alleged negligent act use that reasonable care and caution which an ordinarily prudent person would have used in the same situation? If not, then he [or she] is guilty of negligence."[182]

3. Assumption of Risk

There are cases where, though it was proven that the driver or owner was negligent, the latter's liability to the injured party, usually a passenger, is mitigated. This is because the Civil Code provides that the injured party cannot claim damages when the injury was a result of his own fault or negligence.[183] One of these instances is called the "assumption of risk." Basically, when it is obvious to a person that an injury is possible if he/she does a certain act and does it anyway, the party that assumed the risk shall be deemed responsible for his own mishap.

4. Doctrine of Last Clear Chance

Under this doctrine, two parties were negligent or at fault, but only one is held liable.[184] In this situation, one of two parties was negligent prior to the other, but the latter, despite having the opportunity to avoid the mishap, fails to avoid the mishap.[185] Thus, in such cases, the courts hold the party who failed to avoid the motor vehicle mishap or the one who had the "last clear chance" liable.[186]

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179. CIVIL CODE, art. 2176.

180. *Id.* art. 1173.

181. Picart v. Smith, 37 Phil. 809, 813 (1918).

182. *Id.*

183. CIVIL CODE, art. 2179.

184. McKee v. Intermediate Appellate Court, 211 SCRA 517, 542-43 (1992).

185. *Id.*

186. *Id.*

5. Emergency Doctrine

The courts have also established a judicial doctrine whereby a party to a motor vehicle accident is absolved from liability. Under the Emergency Doctrine, the courts have held that where one party is suddenly caught in a situation where an accident or mishap is unavoidable and must react on impulse, and without an opportunity to assess the best way of acting, the party shall not be liable if it so happens that there would have been a better way to act.[187] However, this will not apply if the person brought about such situation due to his or her fault or negligence.[188]

6. Force Majeure

The Civil Code provides that "except in cases expressly specified by the law, or when it is otherwise declared by stipulation, or when the nature of the obligation requires the assumption of risk, no person shall be responsible for those events which could not be foreseen, or which, though foreseen, were inevitable."[189] Simply put, a party to a motor vehicle accident could not be avoided or was bound to happen due to the circumstances cannot be held liable. The Court further elaborated on this by providing elements to determine whether the situation is indeed force majeure or not.

7. Registered Owner Rule

The rule in the Philippines is that the person under whose name the car is registered shall be liable for damages incurred due to any motor vehicle mishap, regardless of who the actual owner is.[190] The principle behind this is that the owner is responsible for how his vehicle is being operated.[191] It is always presumed that the owner has control over his car and over the person driving it.[192] In such case, the owner is deemed solidarily liable with the actual owner and the driver to the injured party.[193]

187. *Id.* at 540 (citing Gan v. Court of Appeals, 165 SCRA 378, 382 (1988)).

188. *Id.*

189. CIVIL CODE, art. 1173.

190. Jayme v. Apostol, 572 SCRA 41, 56 (2008).

191. PCI Leasing and Finance, Inc. v. UCPB General Insurance Co., Inc., 557 SCRA 141, 149 (2008) (citing Equitable Leasing Corporation v. Suyom, 388 SCRA 445, 453 (2002) & First Malayan Leasing and Finance Corporation v. Court of Appeals, 209 SCRA 660, 663 (1992)).

192. Josefa v. Manila Electric Company, 730 SCRA 126, 136 (2014).

193. *Jayme*, 572 SCRA at 56.

The purpose of this rule is to easily hold someone responsible for the accident.[194] It is quite common that the person injured in an accident is unable to identify the driver or owner of the vehicle who caused the accident.[195] Thus, for convenience, the law allows the injured party to go after the registered owner.[196] However, the registered owner is not left without any recourse.[197] He may seek indemnification from the actual owner or the driver of the vehicle.[198] Therefore, if a motor vehicle accident should occur, the injured party can claim directly from the registered owner. Thereafter, the registered owner can claim from the driver of the vehicle or the actual owner, as the case may be.

IV. WHY THE CURRENT PHILIPPINE LAWS GOVERNING VEHICLE ACCIDENT LIABILITY WILL BE INSUFFICIENT WITH THE ARRIVAL OF SELF-DRIVING CARS

Again, with the advent of self-driving cars, a person's transportation to and from places will change. Imagine that automated cars are now roaming the streets.

Given the above scenario involving Andrei and his self-driving motor vehicle JUN, applying the current liability framework, there are several parties that can be blamed — the owner of the self-driving car (Andrei), the car manufacturer, the software programmer, the company that converted the car to a self-driving one, and the victim. Generally, most research on self-driving cars suggest that these are the parties most likely to be involved in a suit involving a self-driving car collision.[199] The sources of liability arising in these kinds of car accidents could be summarized into three sources: quasi-

194. *PCI Leasing and Finance, Inc.*, 557 SCRA at 150 (citing Erezo, et al. v. Jepte, 102 Phil. 103, 108 (1957)).

195. Filcar Transport Services v. Espinas 674 SCRA 117, 131 (2012) (citing *Erezo, et al.*, 102 Phil. at 108 (1957)).

196. *PCI Leasing and Finance, Inc.*, 557 SCRA at 150 (citing *Erezo, et al.*, 102 Phil. at 108 (1957)).

197. *Filcar Transport Services*, 674 SCRA at 132.

198. *Id.*

199. *See* Julie Goodrich, *Driving Miss Daisy: An Autonomous Chauffer System*, 51 HOUS. L. REV. 266, 280 (2013); Jeffrey Gurney, *Sue My Car Not Me: Products Liability And Accidents Involving Autonomous Vehicles*, 2013 S.C. J. L. TECH. & POL'Y. 248, 271 (2013); & Jack Boeglin, *The Costs Of Self-Driving Cars: Reconciling Freedom And Privacy With Tort Liability In Autonomous Vehicle Regulation*, 17 YALE J. L. TECH. 171, 181 (2015).

delict, product liability, and strict liability.[200] However, there are new circumstances introduced in this case that make assigning liability not as straightforward as they used to. The Author believes that the current liability framework is inadequate, and its application to the case at hand could cause injustice to the parties.

In this part, the Author shall illustrate how the current laws and doctrines governing liability in a conventional motor vehicle accident will be insufficient when applied to a self-driving motor vehicle accident. The current laws will be applied to the abovementioned hypothetical situation.

A. Tort Law

In the abovementioned hypothetical scenario, the driver of the other car wants to be compensated for the damages caused by JUN. Who should indemnify him? As a general rule, the person who caused the accident should be held liable under the current torts framework.[201] In order to be liable for a quasi-delict, a person must cause damage to another through negligence,[202] and what is negligent will be dependent on the circumstances.[203] Thus, the driver, being the one in control of the vehicle, is usually the one who causes the damage through his own fault or negligence in car accidents.[204]

The driver of the other car decides to sue the person who was negligently driving Andrei's car. He asks Andrei who was driving the car during the accident. Andrei tells him JUN was, and he points to the computer dashboard in the car. The driver then decides to sue JUN, the driver and to whom the law imputes liability. However, this changes when the driver is now a computer. This is because, first and foremost, a robot cannot be sued.[205] According to the Civil Code, only natural persons and juridical persons have the capacity to act, and such capacity includes the right to sue or be sued.[206] The Philippines currently does not have a law granting

200. Jessica S. Brodsky, *Autonomous Vehicle Regulation: How an Uncertain Legal Landscape May Hit the Brakes on Self-Driving Cars*, 31 BERKELEY TECH. L. J. 851, 859 (2016) & Marchant & Lindor, *supra* note 130, at 1323.

201. CIVIL CODE, art. 2176.

202. *Id.*

203. *Id.* art. 1173.

204. *See* CIVIL CODE, art. 2176.

205. Matthew Wagner, You Can't Sue a Robot: Are Existing Tort Theories Ready for Artificial Intelligence?, *available at* https://www.frostbrowntodd.com/resources-you-cant-sue-a-robot-are-existing-tort-theories-ready-for-artificial-intelligence.html (last accessed Feb. 29, 2020).

206. CIVIL CODE, arts. 37-47.

a robot or a computer rights. Therefore, it would be impossible to sue a robot car.[207] Thus, JUN, the automated system, cannot be held liable because it is neither a juridical nor a natural person. Therefore, upon the arrival of the self-driving car, if it would get into an accident, the plaintiff cannot sue the wrongdoer directly because it is a robot.

The next possible person the injured party can sue is the person in the driver's seat. So, he decides to sue Andrei. He claims that Andrei was negligent in driving because he was asleep when the accident happened. Thus, being negligent, Andrei is most likely the one liable. However, a person in a self-driving car may argue that he or she cannot be sued because he or she had no control over the vehicle.[208] Again, being merely a passive passenger and not having committed any injury to another through his or her own fault, it would be ridiculous to impute liability on the person inside the car when the accident happened.[209]

To this argument, the injured party may argue that having operated the vehicle, by turning the vehicle on and directing it to go to a certain place, he or she was in control of the vehicle. Thus, he or she should be liable being the one who operated the vehicle which led to the accident. However, it is worth noting that the person in a self-driving car that gets into an accident is not always going to be the same person who operated the vehicle. There will be instances where the self-driving car was used by the owner to have someone else picked up. In such instance, if the self-driving car gets into an accident with the person who was picked up, it would be unfair to hold the person liable because he or she did not have control over the car nor did he or she even operate it. In addition to this, another situation could be when there is no passenger in the car. There will be instances when the self-driving car could be on the road without any person inside.[210] For example, in the situations above, if the self-driving car is en route to pick up a passenger and finds itself in an accident, there is no one there to sue. Thus, in such instance, who will the injured party sue? Given the lack of control, a passenger inside a vehicle when an accident occurs should not be held liable unless he or she is the owner.

Regardless of whether there is someone or no one inside the self-driving motor vehicle when the accident occurs, the plaintiff has one party from whom he or she can claim damages. In motor vehicle accidents, generally, the victim may sue the owner of the vehicle or the employer of the driver of

207. Colonna, *supra* note 71, at 103.

208. *Id.*

209. *Id.*

210. Marshall, *supra* note 53.

the vehicle.[211] The Civil Code holds the employer liable for the acts of his or her employee.[212] Further, the Civil Code holds the owner of a car solidary liable with the driver if, when the accident occurred, the owner could have exercised ordinary diligence to prevent it but did not.[213] Jurisprudence has allowed the victim to claim damages from the owner of the vehicle or employer of the driver. The law defines driver as "every and any licensed operator of a motor vehicle[,]"[214] and a professional driver as basically a paid driver.[215] However, it is worth noting, that in all those instances, the courts have been dealing with a human driver.

This will be different with the introduction of self-driving cars. The driver will not be human anymore because, as mentioned above, it will now be operated by a computer.[216] Therefore, with the introduction of the self-driving cars, the current law can now be interpreted in two ways — first, the robot is considered a driver; or, second, the term driver does not encompass robots. The first interpretation is a valid interpretation because the computer in a self-driving car acts almost like a chauffeur in driving its owner around.[217] The second interpretation is also valid because local laws provide the definition of a driver and, because a computer program does not fall within that definition, the term driver cannot encompass self-driving cars. It is worth noting that the NHTSA has declared that the self-driving motor vehicle of Google is equivalent to a human driver for regulatory purposes.[218] Thus, in the U.S., even if a human enters the vehicle, or if there is no

211. *See* CIVIL CODE, arts. 2184 & 2185.

212. *Id.* art. 2185.

213. *Id.* art. 2184.

214. An Act to Compile the Laws Relative to Land Transportation and Traffic Rules, to Create a Land Transportation Commission and for Other Purposes [Land Transportation and Traffic Code], Republic Act No. 4136, § 3 (d) (1964).

215. *Id.*

216. International Transport Forum of The Organisation for Economic Co-operation and Development, *supra* note 26, at 11.

217. Megan Rose Dickey, Get Ready For Self-Driving Cars That Chauffeur Us Around, *available at* http://www.businessinsider.com/get-ready-for-self-driving-cars-that-chauffeur-us-around-2013-1 (last accessed Feb. 29, 2020).

218. Mark A. Geistfeld, *A Roadmap for Autonomous Vehicles: State Tort Liability, Automobile Insurance, and Federal Safety Regulation*, 105 CAL. L. REV. 1611, 1691 (2018) (citing NHTSA, Letter from Paul A. Hemmersbaugh, Chief Counsel, Nat'l Highway Traffic Safety Admin., to Chris Urmson, Director, *available at* https://perma.cc/ZK69-EZLZ (last accessed Feb. 29, 2020)).

human inside the vehicle, the car's computer program will be considered the driver.[219]

In the situation presented above, JUN was driving Andrei. Given that the car had a manual option, had Andrei been awake, he could have taken over the car's functions and prevented the accident from happening. In this case, if the courts use the first interpretation, then the owner can be held liable for the acts committed by the robot car.[220] On the other hand, if the courts use the second interpretation, then the plaintiff cannot claim damages from the owner. Thus, based on the foregoing, there could be two different ways of applying the current provisions which impute liability to the owner. The question now is: which would be the more reasonable application?

Further, the definition of driver, as provided by our Land Transportation and Traffic Code, may add further confusion to the mix. Again, it is simply defined as any licensed operator of a motor vehicle.[221] The law does not go into the definition of operator.[222] It could be presumed that the definition of "operator" is its dictionary definition which means a person that "controls" the functioning of a machine.[223] Thus, an operator could be simply a person that turns on or activates the car.[224] Further, the Land Transportation Traffic Code defines motor vehicles as "any vehicle propelled by any power other than muscular power using the public highways[.]"[225] Thus, it is safe to assume that self-driving cars are also covered by the law. It is submitted, therefore, that the current definition of driver will cover any licensed person who operates a self-driving car.

Given the broad definition of driver, a driver can be any person who decides to activate a self-driving car. The definition is broad enough to cover a situation where the driver is not in the car, which is going to be common with the advent of self-driving cars. The provision does not require the driver to be in the car. The injured party in a self-driving car accident can always inquire as to who activated the vehicle. Once he or she finds out who

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219. Brian Fung, Google's driverless cars are now legally the same as a human driver, *available at* https://www.washingtonpost.com/news/the-switch/wp/2016/02/10/googles-driverless-cars-are-now-legally-the-same-as-a-human-driver/?noredirect=onF&utm_term=.d07b1927c0aa (last accessed Feb. 29, 2020).

220. *See* CIVIL CODE, arts. 2180 & 2184.

221. Land Transportation and Traffic Code, § 3 (d).

222. *See* Land Transportation and Traffic Code.

223. Merriam-Webster, operator, *available at* https://www.merriam-webster.com/dictionary/operator (last accessed Feb. 29, 2020).

224. *See* BLACK'S LAW DICTIONARY 1091-92 (1990 ed.).

225. Land Transportation and Traffic Code, § 3 (a).

activated it, he or she can sue that person because he or she caused the accident for having activated the car in the first place.

Applying this to the abovementioned hypothetical scenario, the injured party can sue Andrei because he is the person who is considered the driver in that situation. However, again, this would be unfair for the person who is considered the driver because he or she was merely a passive passenger. The person who activates the self-driving car was not in control of the vehicle when the accident happened; therefore, he or she could not have committed a negligent act.

B. Product Liability

Another area that will be affected by the arrival of the autonomous car is product liability. As mentioned above, the manufacturer can be held liable for making a defective product under Article 2176 of the Civil Code.[226] To reiterate, the provision punishes a person for any damage caused due to a negligent act.[227] Thus, a manufacturer can be deemed negligent for making a defective product. In the hypothetical scenario, assuming that the injured party was successful in claiming damages from Andrei, the latter can seek indemnification from the manufacturer for the damage caused by the defective product.

Product liability seems like the most plausible route to impute liability.[228] However, there are a number of reasons why this will be unfair. First, a self-driving car will not always be made by the same manufacturer.[229] There will be times when another person or company — called an "automator" — converts a conventional car into a self-driving one.[230]

Second, not all self-driving vehicles can function without a human.[231] As mentioned, there are several levels of driving automation.[232] Some of the levels of driving automation still require a human to monitor the vehicles or intervene when necessary.[233] It is a common misconception for people to think that the mere fact a vehicle has an autopilot function means that the

226. AQUINO, *supra* note 152, at 768.

227. CIVIL CODE, art. 2176.

228. Geistfeld, *supra* note 218, at 1691.

229. Boeglin, *supra* note 199, at 185.

230. The term was coined by the author. Goodrich, *supra* note 199, at 280.

231. SAE International, *supra* note 80.

232. *Id.*

233. *Id.*

vehicle is self-driving and can be left without surveillance.[234] Should an accident occur while on autopilot, the owner will blame the manufacturer for the faulty autopilot. It is worth noting that the Philippines does not have jurisprudence involving autopilot or any autonomous systems. Therefore, the courts are ill-equipped to handle cases involving such systems. At first glance, an accident caused by a faulty autopilot system may indeed be a manufacturing defect. However, it is worth noting that autopilot systems still require human monitoring.[235] These systems fall back on the human when there is any danger or defect.[236] Thus, the one still in control is the human and not the computer. Therefore, it would not be fair to hold the manufacturer responsible for a faulty autopilot system given that the human still has control.

Third, an element of product liability under Article 2176 of the Civil Code is either fault or negligence.[237] In the absence of either, a manufacturer cannot be held liable unless what is involved is strict liability.[238] It is worth noting that there are times that a self-driving motor vehicle would get into an accident even without any defect in the motor vehicle; these are situations which could not have been foreseen when developing the program or fall into gaps in the programming.[239] These are instances which could not have been foreseen by the programmer who inputted the code in the self-driving vehicle; and thus, the computer would not know how to react.

In such scenario, the question is whether that will be considered negligence on the part of the manufacturer. Assuming it will not be considered negligence or a defect, the manufacturer cannot be held liable under product liability laws. Who will be held liable then? The only recourse then would be against the registered owner by the mere fact that he or she is the registered owner. However, this would be unfair, again, given that he or she has no control over the vehicle. Further, in such scenario, what will be considered negligence on the part of the manufacturer?

A way around this problem is to consider the lack of foresight as a hidden defect. As mentioned, a hidden defect is defined as a defect that is

234. *See* Waymo, Waymo Safety Report: On the Road to Fully Self-Driving at 12, *available at* https://storage.googleapis.com/sdc-prod/v1/safety-report/waymo-safety-report-2017.pdf (last accessed Feb. 29, 2020).

235. SAE International, *supra* note 80.

236. *Id.*

237. AQUINO, *supra* note 152, at 24.

238. *Id.*

239. Geistfeld, *supra* note 218, at 1635.

"unknown or could not have been known by the manufacturer."[240] The owner can make a claim against the manufacturer on the basis of warranties, either express or implied.[241] However, a flaw in this approach is the prescriptive period. An action for breach of warranty premised on a hidden defect can only be claimed within six months from delivery of the car.[242] After the prescriptive period, the owner of the vehicle cannot make a claim against the manufacturer for hidden defects. Thus, liability will remain with him or her. However, again, it would be unfair to hold the owner liable because there was no fault or negligence on his or her part.

Product liability for automobiles is also governed by the recently enacted Philippine Lemon Law.[243] The law was enacted in 2014, a time when the self-driving car has already been in existence.[244] The law defines a motor vehicle as "any self-propelled, four (4) wheeled road vehicle designed to carry passengers including, but not limited to, sedans, coupes, station wagons, convertibles, pick-ups, vans," and the like.[245] Given the definition, it covers all types of automobiles, and does not distinguish between a self-driving one and a conventional one. The Philippine Lemon Law provides that the buyer of a motor vehicle has 12 months from the delivery date or the first 20,000 kilometers of travel within which he or she can claim liability for any manufacturing or design defects.[246] When it comes to self-driving car accidents, the cause of the accidents will usually arise due to manufacturing or design defects,[247] such as when the sensing hardware fails to detect something leading to an accident,[248] or where the software malfunctions.[249] In such instances, the owner can claim his or her Lemon Law rights provided the accident occurred within 12 months from the date of delivery. The available remedies only cover replacement, repairs, and/or travel allowance during the repairs.[250] There is no mention of recovery of damages

240. Supercars Management & Development Corporation v. Flores, 446 SCRA 34, 42 (2004) (citing Knecht v. Court of Appeals, 158 SCRA 80, 83 (1988)).

241. AQUINO, *supra* note 152, at 764.

242. CIVIL CODE, art. 1571.

243. *See* Philippine Lemon Law.

244. *Id.*

245. *Id.* § 3 (j).

246. *Id.*

247. Goodrich, *supra* note 199, at 294.

248. Gurney, *supra* note 199, at 259.

249. Colonna, *supra* note 71, at 103.

250. Philippine Lemon Law, §§ 7-8.

due to defect in the automobile, unless the same should arise from another law.[251]

Applying the Philippine Lemon Law to the hypothetical scenario, Andrei claims he should not be liable because he had no control over the vehicle. The victim claims from him anyway and tells Andrei to go after the manufacturer for the damage caused by the malfunction. Because the case between Andrei and the victim dragged on, it has been two years or 24 months since the vehicle was delivered to Andrei and the manufacturer refuses to replace the vehicle or do the repairs because the same was beyond the period to claim his Lemon Law rights. Further, the manufacturer argues that it does not need to reimburse the owner for damage caused because this is not covered by the Philippine Lemon Law.[252] The manufacturer also says that Philippine jurisprudence has held the registered owner of the vehicle liable for the damages that arise due accidents involving the owner's motor vehicle.[253] Lastly, the manufacturer says that the strict liability imposed by the Consumer Act does not apply because the same only covers consumer goods,[254] and the Philippine Lemon Law is the law that governs automobile defects.[255]

Assuming the accident was due to a hidden defect, the same problem can happen. In fact, it will be worse for cases involving hidden defects because claims must be made within six months from delivery.[256] After six months, the registered owner will have to bear the loss himself or herself.

Given the foregoing, it seems that liability for any accident caused by the self-driving car will revert to the general rule — the registered owner is liable. However, again, as mentioned, making the registered owner liable is not fair given that he or she does not control how the computer program acts on the road.

C. Judicial Doctrines

1. Negligence

The principle of negligence involving driving and car accidents will also change. Negligence is one of the elements necessary to hold a person liable

251. *See* Philippine Lemon Law.

252. *Id.*

253. *Josefa*, 730 SCRA at 147.

254. De Guzman v. Toyota Cubao, Inc., 508 SCRA 408, 416–17 (2006).

255. *See* Philippine Lemon Law, § 2.

256. CIVIL CODE, art. 1571.

for quasi-delict.[257] Currently, there is negligence when a person fails to exercise the required diligence required of the act and will depend on the circumstances surrounding the situation.[258] There are numerous ways to be considered negligent when driving. It can range from distracted driving, driving under the influence, driving while texting, driving without adequate sleep, speeding, and violating traffic rules.[259] In fact, both driving under the influence and distracted driving have respective laws punishing such acts.[260] However, will this still be relevant when the self-driving car arrives? The self-driving car will always have a designated driver — the computer. In fact, the purpose of buying a self-driving car is so that the driver does not need to pay attention to the road. Because negligence is always determined based on the circumstances of the case, does the arrival of the self-driving car render irrelevant the concept of negligence given that the driver is now merely a passive passenger?[261] Will this apply to both fully-autonomous and semi-autonomous self-driving cars? Because the owner and/or driver is now being driven, does that mean he or she is free to text, be drunk, sleep, and eat while driving without being considered negligent?

2. Test of Negligence

The current test of negligence provides that, in deciding if one is negligent, one must determine whether the act committed by the allegedly negligent person is done with that reasonable care and caution which an ordinarily prudent person would have used in the same situation.[262] When doing this, the Court tends to compare the situation with past jurisprudence involving similar circumstances as that of the case currently being decided on.[263] Thus, when it comes to driving, the Court will look at how other drivers would have acted in that situation. However, with the arrival of the self-driving car, this will be different. In determining what would be considered as the reasonable care and caution that an ordinary person would exercise, will the Court be comparing self-driving cars to conventional cars caught in the same

257. Andamo v. Intermediate Appellate Court, 191 SCRA 195, 201 (1990).

258. CIVIL CODE, art. 1172.

259. Sophia Duffy & Jamie Hopkins, *Sit, Stay, Drive: The Future of Autonomous Car Liability*, 16 SMU SCI. & TECH. L. REV. 454, 457 (2013).

260. *See* An Act Penalizing Persons Driving Under the Influence of Alcohol, Dangerous Drugs, and Similar Substances, and for Other Purposes [Anti-Drunk and Drugged Driving Act of 2013], Republic Act No. 10586, (2013) & Act Defining and Penalizing Distracted Driving [Anti-Distracted Driving Act], Republic Act No. 10913 (2015).

261. Colonna, *supra* note 71, at 103.

262. *Picart*, 37 Phil. at 813.

263. *See Picart*, 37 Phil. at 813.

situation, or will the Court compare it to other self-driving cars? It is worth noting that the Court has never decided a case involving self-driving cars, or anything involving autopilot functions for that matter. The courts also look at whether the tortfeasor should have known that his acts would lead to an injury.[264] However, given the benefit provided by self-driving cars, will the person in said vehicle be considered to have known that not paying attention to the road while on autopilot would have resulted in the accident?

4. Assumption of Risk

The doctrine of assumption of risk provides that "no wrong is done to him [or her] who consents."[265] It provides that anyone who purchases a product knowing all the possible risks attached to it shall assume the liability or responsibilities that should arise due to such risk.[266] It is believed that, in cases of accidents involving self-driving cars, this doctrine will be used by manufacturers against claims from purchasers.[267] The problem with making this defense available to the manufacturer, however, is that the owner will remain liable to persons injured by the malfunction of the vehicle.[268] This scenario will unduly prejudice the owner of the vehicle because he or she will be held liable for something he or she does not have control over, and is, in fact, controlled by the manufacturer.[269] In light of this interpretation, it is possible that the degree of care observed by the manufacturer will decrease knowing this defense is available to them.[270] Thus, an owner can be liable to the injured person without recourse to the manufacturer. Thus, this begs the question, will the assumption of risk doctrine be applicable to a situation where the owner gets into an accident with another vehicle?

5. Emergency Doctrine

The emergency doctrine exculpates a person from liability in situations where said person did not have enough time to think about how to act.[271] The reason for this doctrine is because no person can be said to be thinking

264. *Id.*

265. AQUINO, *supra* note 152, at 239 (citing Transporto v. Mijares, 1 CAR 2S 860 (1961)).

266. Marchant & Lindor, *supra* note 130, at 1336.

267. Brodsky, *supra* note 200, at 861.

268. Marchant & Lindor, *supra* note 130, at 1337.

269. Brodsky, *supra* note 200, at 861.

270. *Id.*

271. *McKee*, 211 SCRA at 540.

clearly when in danger.[272] However, again, the advent of self-driving cars changes the context. This time, it is not a person who will have to react, when face to face with danger, but a computer. The self-driving car is pre-programmed to act and has a pre-programmed response to each scenario.[273] Thus, where the self-driving car is caught in a situation where it is inevitable for it to injure a person, the person it decides to injure is a decision pre-programmed into its system.[274] Given this situation, the spirit of the emergency doctrine is removed. Thus, can the emergency doctrine still be applied to mitigate liability when, though in danger, its decision has already been pre-programmed?

6. *Res Ipsa Loquitur*

Res ipsa loquitur, or the thing speaks for itself, provides that

> where the thing which caused the injury complained of is shown to be under the management of the defendant or his [or her] servants and the accident is such as in ordinary course of things does not happen if those who have its management or control use proper care, it affords reasonable evidence, in the absence of explanation by the defendant, that the accident arose from or was caused by the defendants want of care.[275]

This creates a presumption of fault against the person who has control over the thing that caused the injury. As repeatedly mentioned, there will be confusion as to who truly has control over the self-driving car — its owner or its manufacturer. Though the owner has control over its use, the manufacturer still has control over its program. Thus, in instances when *res ipsa loquitur* may be applied, is the defendant either the manufacturer or the owner?

7. Registered Owner Rule

Again, in this jurisdiction, it has been settled that the registered owner of a motor vehicle is deemed liable for the damage caused by his or her car. The owner is considered the person accountable for the consequences of its

272. AQUINO, *supra* note 152, at 47 (citing Valenzuela v. Court of Appeals, 253 SCRA 303, 318 (1996)).

273. Goodall, *supra* note 32, at 60.

274. Ted-Ed, Video, *The ethical dilemma of self-driving cars - Patrick Lin*, YOUTUBE, Dec. 8, 2015, *available at* https://www.youtube.com/watch?v=ixIoDYVfKA0&vl=en (last accessed Feb. 29, 2020).

275. Africa, et al. v. Caltex (Phil.), Inc., 16 SCRA 448, 456 (1966).

operation.[276] Thus, the registered owner who activates the self-driving car will be liable for any consequence. Taking a look again at the hypothetical situation, the injured party can sue Andrei, the registered owner, regardless of who is in the car, or if no one is in the car.

Andrei, however, can seek recourse from the manufacturer on the basis of product liability. The manufacturer of a self-driving car having been the main cause of the accident for creating a defective product can be held responsible under Article 2176, warranties, or fraud or misrepresentation. Thus, it would make sense for the registered owner to claim from the manufacturer.

D. Summary

In a motor vehicle accident involving conventional cars, the current liability framework is straightforward. The law looks at who is at fault or negligent when determining who should be responsible.[277] However, this all changes with the introduction of self-driving motor vehicles.

Control over the vehicle will not easily be determined anymore. The motor vehicle, as we know it, has always been controlled by a driver who is human. However, the self-driving car will not always be controlled by a human.[278] In fact, there will be times when there will be no human inside the vehicle.[279] The motor vehicle will be controlled by a computer.[280] However, it is worth noting that self-driving cars will have several levels of driving automation.[281] These levels add another layer of confusion when applying the current liability framework. Therefore, in these cases, who should the injured party sue? He cannot sue a computer because the law does not grant it juridical personality. The injured party cannot always sue the person in the car. The person in the car will not have control over the vehicle. At times, the person in the car will just be some person who was picked up. Therefore, there is no legal nexus by which they can be sued as they are merely passive passengers.

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276. *PCI Leasing and Finance, Inc.*, 557 SCRA at 149 (citing *Equitable Leasing Corporation*, 388 SCRA at 453 & *First Malayan Leasing and Finance Corp.*, 209 SCRA at 663).

277. CIVIL CODE, art. 2176.

278. Geistfeld, *supra* note 218, at 1624 (citing International Transport Forum, *supra* note 26, at 11).

279. Goodrich, *supra* note 199, at 279 (citing Frank Douma & Sarah Aue Palodichuk, *Criminal Liability Issues Created by Autonomous Vehicles*, 52 SANTA CLARA L. REV. 1157, 1160 (2012)).

280. Colonna, *supra* note 71, at 86-88.

281. SAE International, *supra* note 80.

The injured party can also go after the owner. The latter can be held liable under Articles 2180 and 2184 of the Civil Code or the registered-owner rule.[282] The application of Article 2180 and 2184 of the Civil Code is based on the vicarious liability of the owner of the self-driving car. However, this application will depend on whether the computer program in the motor vehicle will be considered a "driver" within the meaning of the word. Regardless of the interpretation of the word "driver" in the Civil Code, the registered owner can be held liable without prejudice to his/her right of recourse against the manufacturer.

The manufacturer may be held liable by reason of product liability. He can be held liable under Article 2176 of the Civil Code for negligence in producing a defective product, the provisions of Warranties,[283] and the Philippine Lemon Law.[284] However, as mentioned, there will be instances where the self-driving car will get into an accident not due to any product defect. In these instances, the manufacturer cannot be held liable under Article 2176 of the Civil Code because there was no negligence. Nevertheless, the manufacturer can be held liable for hidden defects and the provisions of warranty. However, liability under such provisions are subject to a prescriptive period. Once prescribed, what then will the injured party do?

V. HOW WE CAN FIX THIS PROBLEM

Given the foregoing discussion, it is submitted that there is going to be uncertainty in the legal landscape of tort liability involving self-driving motor vehicles. The introduction of self-driving technology eliminated the human driver. Consequently, this also removed the first person to whom liability is generally imputed to — the human driver. Hence, confusion arises on who is the next person to whom liability should be imputed. The courts should, thus, tread carefully when deciding cases involving self-driving cars because misapplication of law can easily occur if we apply current laws.

A. Clarifying the Term "DRIVER"

As can be gleaned from the previous discussion, a big issue is the old definition of "driver."[285] By maintaining the old definition of "driver," liability could end up being imputed on the wrong person. Liability will be imputed on a person who has no control over the vehicle. It can also be imputed on a passenger who was merely riding someone else's self-driving

282. CIVIL CODE, arts. 2180 & 2184.

283. AQUINO, *supra* note 152, at 712.

284. *See* Philippine Lemon Law.

285. Goodrich, *supra* note 199, at 279.

motor vehicle when, not only did he/she not have control, but he or she was asked to ride the car by someone else.

From another point of view, the current definition may cause the courts to always impute liability on the owner of the car. Black's Law Dictionary defines "driver" as the individual who is driving the vehicle.[286] To "drive" is defined as to "compel to go in a particular direction[.]"[287] In the Philippines, a "driver" is simply anyone who operates a vehicle and has a license. Further, Black's Law Dictionary defines "operate" as "[t]o perform a function"[288] Using these definitions, as mentioned, the owner can be held liable as an operator for merely enabling the car to go to a certain area. This would be unfair because he or she has no control over the vehicle. Further, the whole point of a self-driving car is to let it travel to places without a person having to control or be physically in the car.

All these issues will be resolved by providing for a new definition for "driver," or at least establish a different definition for "driver" with respect to self-driving cars.[289] In doing so, this solves the first problem of wrongly imputing liability on a person in the car.[290] The innocent passenger who was picked up by his or her friend's self-driving car will not be held liable for any accident that should occur by simply being in the car. It will also aid in determining who is responsible in self-driving car accidents wherein there is no person inside the vehicle.

Further, providing a new definition will clarify the term "driver" as used in the Civil Code. As mentioned, certain provisions in the Civil Code hold the owner of a vehicle liable for accidents caused by the driver. However, these provisions assume that a human driver will be behind the wheel. A human over whom the owner or employer has control and supervision. Self-driving cars replaced the human driver with a computer. The computer program of the self-driving car is now the operator of the car. Consequently, it would be unfair to hold the owner of the car liable for the negligence of the new "driver" when the former does not always have control over the same.

B. Clarifying the term "MANUFACTURER"

Another area of confusion caused by the arrival of the self-driving car is determining who is going to be liable as the "manufacturer." This will not

286. BLACK'S LAW DICTIONARY 495.

287. *Id.*

288. *Id.* at 1091.

289. *See* Douma & Palodichuk, *supra* note 279 & Goodrich, *supra* note 199.

290. *Id.*

be a problem for self-driving cars solely manufactured by one company. As mentioned, the self-driving car will not always be made by one company.[291] There are instances when another company converts a conventional car into a self-driving one.[292] For example, in 2010, Google was converting conventional cars to self-driving cars.[293] Given the foregoing, there is an additional party that can be held liable in a self-driving car accident, one who is not present in a conventional car accident — the automator.[294] This is the one who transforms a conventional car into a self-driving car. There is a need to distinguish between the two because self-driving cars can be manufactured in different ways. Ultimately, if a lawsuit arises against the manufacturer of the self-driving car, which can either be the manufacturer or the automator, imputation of liability is not easy because their degree of participation is different. The distinction will be crucial in determining who should be liable in case of a product defect in the self-driving car.

C. Defining the Levels of Driving Automation

A source of uncertainty introduced by the arrival of self-driving cars is determining who has control over the vehicle. Control is useful in determining to whom responsibility over the vehicle should be imputed.[295] Thus, there is a need to define or adopt already made definitions for the levels of driving automation. Philippine laws governing motor vehicle accidents presume that there is always a human in control of the vehicle. However, as mentioned, the self-driving motor vehicle changes all that.

Self-driving is a general term. As mentioned above, there are different levels to self-driving technology.[296] These levels differ in amount of control shared between the human and the computer.[297] Simply because the motor vehicle is labeled as "self-driving" does not automatically mean the person in the vehicle is free to sleep while he or she is on the road.[298] There are some

291. Glancy, *supra* note 76, at 640.

292. *Id.*

293. Goodrich, *supra* note 199, at 276.

294. Daniel A. Crane, et. al., *A Survey of Legal Issues Arising from the Deployment of Autonomous and Connected Vehicles*, 23 MICH. TELECOMM. & TECH. L. REV. 191, 262 (2017).

295. National Transport Commission Australia, Regulatory reforms for automated road vehicles at 33, *available at* https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Policy%20Paper%20-%20Regulatory%20reforms%20for%20automated%20road%20vehicles.pdf (last accessed Feb. 29, 2020).

296. SAE International, *supra* note 80.

297. *Id.*

298. Bloomberg, *supra* note 101.

levels of automation that will still need a human to be in control or at least be monitoring the surroundings.[299] A person who gets into an accident while operating a self-driving vehicle cannot escape liability by simply saying he or she relied on self-driving technology. The responsibility of a person will depend on the level of self-driving automation, specifically, whether it is partially autonomous or fully autonomous.

An example of this would be the self-driving car accident involving Tesla's autopilot system. Tesla's autopilot system is partially autonomous.[300] It is said to be either level two or level three on SAE's Levels of Driving Automation.[301] Both these levels still require the human driver to pay attention to the road.[302] Moreover, the Tesla vehicle will remind the user to keep your hand on the steering wheel twice prior to fully engaging the autopilot function.[303] The NHTSA investigated the accident and found that the Tesla Autopilot was not at fault because the driver had enough time to step on the brakes and prevent the accident.[304]

Defining the various levels of automation will also help aid the courts in deciding cases. The Philippines does not have any jurisprudence involving autopilot. This is unlike in the U.S. which has rich jurisprudence involving autopilot technology, from elevators to airplanes.[305] Thus, the U.S. Supreme Court has dealt with and has established liability frameworks involving similar technology.[306] It is safe to assume that it is familiar with similar kinds of technology. Further, the U.S. has already taken steps in defining the different levels of driving automation via the NHTSA.[307]

Therefore, having not dealt with any similar form of technology in the past, there could be uncertainty as to the application of tort law or product liability laws to self-driving car technology. This uncertainty can unduly

299. SAE International, *supra* note 80.

300. NHTSA, ODI Resume (A Summary of the NHTSA Investigation of the Tesla Autopilot Accident), *available at* https://static.nhtsa.gov/odi/inv/2016/INCLA-PE16007-7876.PDF (last accessed Feb. 29, 2020).

301. Burgess, *supra* note 94.

302. SAE International, *supra* note 80.

303. WIRED, *supra* note 95.

304. Danielle Muoio, Tesla is already showing how the insurance industry will be disrupted by self-driving cars, *available at* https://www.businessinsider.com/driverless-cars-could-negatively-affect-insurance-industry-2017-2 (last accessed Feb. 29, 2020).

305. Colonna, *supra* note 71, at 91.

306. *Id.*

307. National Highway Traffic Administration, *supra* note 78.

prejudice both the manufacturer and the owner. However, establishing a definition for the different levels of driving automation may aid the courts in determining responsibility. These definitions will give the courts an idea regarding the role of humans in self-driving cars.[308]

D. Establishing a Self-Driving Car Liability

The arrival of the self-driving car will shift liability mostly to the manufacturer.[309] This is because the responsibility for avoiding accidents will now be on vehicle manufacturers.[310] Thus, claims shall be filed against manufacturers, should an accident arise.[311] This shift in liability, however, will be detrimental.[312] By shifting liability to manufacturers, they will be dissuaded from introducing self-driving technology to the public as soon as possible.[313] Consequently, the benefits promised by this technology might never arrive if the same will just lead to lawsuits against them.[314]

In addition, the shift in liability can stifle innovation.[315] The result of this shift in liability is also contrary to the constitutional directive concerning science and technology.[316] Article 14, Section 10 of the 1987 Constitution emphasizes the importance of science and technology to national development.[317] It further provides that "[t]he State shall give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training, and services[.]" Black's Law Dictionary defines "priority" as having a "legal preference[.]"[318] Further, a perusal of the 1987 Constitution shows that the priority areas are science and technology and social justice and human rights, with the highest priority given to the latter.[319] Ultimately, the State has a duty to ensure that innovation is not stifled.

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308. *See* Bryant Walker Smith, TESLA AND LIABILITY, *available at* https://cyberlaw.stanford.edu/blog/2015/05/tesla-and-liability (last accessed Feb. 29, 2020).

309. Colonna, *supra* note 71, at 116.

310. Marchant & Lindor, *supra* note 130, at 1339.

311. *Id.* at 1340.

312. Goodrich, *supra* note 199, at 280.

313. *Id.* at 281.

314. Brodsky, *supra* note 200, at 865.

315. Glancy, *supra* note 76, at 656.

316. PHIL. CONST. art. XIV.

317. PHIL. CONST. art XIV, § 10.

318. BLACK'S LAW DICTIONARY 1193.

319. *See* PHIL. CONST. arts. XIII & XIV.

Given the foregoing, this is not to say the manufacturers of self-driving cars should be immune from liability. Instead, manufacturers should not be the ones solely liable for any accident. The courts should carefully assess the accident and determine what was really the cause of the injury. There will be times when the accident, though on autonomous mode, was not due to, or solely, the manufacturer's fault. In order to prevent this injustice, there is a need to establish a framework to determine who is responsible in self-driving car accidents.

The Court has dealt with numerous cases involving motor vehicle accidents. However, all these cases involve motor vehicle accidents with a human behind the wheel. The Court has never dealt with a case involving a robot driving a motor vehicle (let alone one involving autopilot systems). Thus, should a self-driving car accident happen, this will be the first tort case involving autonomous technology. A legal framework should be established to prevent a misapplication of tort law.

VI. CONCLUSION

With a number of countries passing their own legislation regulating self-driving cars,[320] and with 41 U.S. states having passed their own versions,[321] the Author submits that it is time the Philippines did the same. It is time the Philippines took an active approach, rather than a passive one, towards technology. The Author submits that the intricacies involving self-driving cars create a gap in our existing laws, especially our tort law. Hence, amendments to the existing statutes or the passing of a new law specifically addressing this can make our tort framework responsive to different issues. The amendments or the new law need to clarify and provide definitions for certain terms involving self-driving cars as well as other regulations needed for self-driving motor vehicles. As mentioned, the current law governing liability will become increasingly complex with self-driving cars as compared to conventional cars. The moment the first self-driving car accident occurs in the Philippines, a lot of confusion will arise as to who will be liable and it could lead to a misapplication of the law or an unfair ruling. This is because of the introduction of new facets to the act of driving that were not foreseen during the time the laws were made. The first step in solving this problem would be to define and clarify certain terms, just like what most countries

320. Synced Review, Global Survey of Autonomous Vehicle Regulations, *available at* https://medium.com/syncedreview/global-survey-of-autonomous-vehicle-regulations-6b8608f205f9 (last accessed Feb. 29, 2020).

321. National Conference of State Legislators, Autonomous Vehicles | Self-Driving Vehicles Enacted Legislation, *available at* http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx (last accessed Feb. 29, 2020).

and U.S. states are doing. Thus, the Author concludes that current Philippine laws governing liability are insufficient to meet the advent of self-driving cars. A new law must be passed, or an amendment to the law must be made, to meet the arrival of the self-driving car.

VII. RECOMMENDATION

A. Proposed Self-Driving Cars Motor Vehicle Law

The Philippines should draft a new law providing definitions and other regulatory mechanisms to resolve the gaps in the law, and to be able to determine liability, the Philippines should draft a new law providing definitions and other regulatory mechanisms. The Author recommends that the model legislation be similar to that found in Part C: Annex. The Congress may add other provisions it may deem necessary. However, the ones enumerated in the Annex and the following portions are the essential provisions.

1. Definition of Terms

The Author recommends that a new law be passed which will be supplemented by the Land Transportation and Traffic Code. The provisions should be similar to those done by some of the statutes in the U.S.

First and foremost, the term "autonomous technology" should be defined. The Author submits that it be defined as follows —

> Autonomous technology — technology that has the capability to drive a vehicle without the active physical control or monitoring by a human operator.[322]

Second, the term "self-driving vehicle" should be defined. Determining responsibility will be easier by providing a definition to self-driving cars. The Author submits that it is easier to pinpoint liability if the courts know what a fully autonomous vehicle is and what a semi-autonomous vehicle is. This is because, by distinguishing the two, the courts will be able to determine the amount of control the driver had over the vehicle prior to the accident. Thus, it will be easier to determine the proximate cause of the injury by knowing the amount of control the driver has. The courts will be able to determine the amount of diligence that should have been exercised prior to the incident. In a partially automated car, the driver must still observe due diligence in driving and must take charge when necessary. Thus, it will be easier to impute negligence on the driver of a semi-autonomous vehicle, when an accident occurs, it is easier to impute negligence on the driver of a semi-autonomous vehicle. On the other hand, the driver or operator of a

322. CAL. VEH. CODE § 38750 (a) (1) (West 2000) (U.S.).

fully automated car does not have control of the vehicle; thus, it would be unfair to blame the driver in a fully automated car as negligent because he or she had no control over the same. Therefore, the Author recommends the definition to be patterned after the definition used in California and in the District of Columbia. The provision shall be —

> 'Self-Driving Vehicle' — means any vehicle equipped with autonomous technology that has been integrated into that vehicle. The term excludes a motor vehicle enabled with active safety systems or driver- assistance systems, including systems to provide electronic blind-spot assistance, crash avoidance, emergency braking, parking assistance, adaptive cruise control, lane-keep assistance, lane-departure warning, or traffic jam and queuing assistance, unless the system alone or in combination with other systems enables the vehicle on which the technology is installed to drive without active control or monitoring by a human operator.[323]

Further, the terms "operator," "driver," "artificial intelligence," and "owner" should be added. A bulk of the confusion that will be caused by the self-driving car would be who is considered the "driver." As mentioned, our Civil Code and jurisprudence holds the tortfeasor liable for the damage caused. This is usually the driver of the vehicle when it comes to damages caused by accidents. However, again, in self-driving cars, the driver is technically the computer, and the law cannot impose liabilities on a computer program. Thus, the courts will be saved from the tragedy of making a wrong determination by simply introducing the definitions of these terms, the courts will be saved from the tragedy of making a wrong determination.

Therefore, *third*, the Author suggests that the term "operator" be defined as "a person who engages the self-driving car, regardless of whether he/she is a passenger or not."[324]

By clearly defining an operator, the person riding the vehicle is taken out of the ambit of driver; and consequently, removing him or her from the possibility of liability in case of an accident. Further, this definition is congruent with the suggested definition of what a self-driving car is.

Fourth, the term driver should be defined with more specificity. Another source of confusion is determining who is the driver-employee of the owner of the vehicle. As mentioned, the owner is usually liable for the acts of the

323. The provision was lifted from the California Vehicle Code and the DC Autonomous vehicle act. The two provisions were combined. CAL. VEH. CODE § 38750 (a) (2) (A) & Autonomous Vehicle Act of 2012, 49 U.S.C. § 50–2351 (2019) (U.S.).

324. This provision was derived from the Florida House Bill which was signed into law. FLA. STAT. § 1 (2019) (U.S.).

driver. However, that was the context during a time when humans were driving the car. This changes with the advent of the self-driving car because self-driving cars are always driven by something other than the owner. The owner has more control over how a human driver acts than a computer because the latter has already set algorithms making its actions pre-planned.

Redefining the term "driver" will answer whether the term "driver" in the Civil Code includes a computer program. Thus, the Author recommends that the term driver be limited to human operators. The addition of the word "human" to the provision of driver will relieve the owner of the vehicle from possible liability that could be imputed on him or her vicariously. Thus, the definition of "driver," in the context of self-driving cars, shall mean "every and any licensed human operator of a motor vehicle."[325] The proposed provision is derived from the Land Transportation and Traffic Code but has been modified to include the word "human." This is to clearly distinguish a human driver from the computer program driving the car.

Fifth, the next term that must be defined is "artificial intelligence" for purposes of self-driving vehicles. The purpose of defining this term is similar to the purpose for redefining "driver." The definition will further enforce that fact that the term "driver" does not cover the computer driving the car. The computer program shall be considered as "artificial intelligence" and not a "driver." Thus, the Author recommends lifting the definition from the Nevada statute. It is one of the few state laws that define what artificial intelligence is. Further, it adequately addresses the gap in Philippine laws.

Sixth, the "manufacturer" should be distinguished from the "automator." This has been commonly done in statutes in the U.S. and with reason. As mentioned above, the one who manufactures a motor vehicle and the one who converts it into a self-driving vehicle can be two different companies. Therefore, it would be wise to distinguish the two. Also, this prevents wrongful imputation of liability on a manufacturer who was not responsible for the self-driving motor vehicle's self-driving function.

2. Define Levels of Driving Automation

The Author suggests that the Philippines defines the different levels of driving automation. The purpose of this is to inform and aid the courts in understanding the various kinds of autonomous technology. As mentioned, understanding the levels of autonomy gives a clearer picture of the level of control and responsibility a human has with respect to driving. Further,

325. This provision is a derivative of the original provision except the word "human" was added for the purposes of this recommendation. Land Transportation and Traffic Code, § 3 (d).

labeling a motor vehicle as self-driving does not automatically mean that the human in the car does not need to monitor the vehicle anymore. The confusion as to who or what is in control of the vehicle is clarified by defining the levels, the confusion as to who or what is in control of the vehicle is clarified; and, thus, it will be easier to determine who is legally responsible for the vehicle and the amount of diligence required.

The Author suggest adapting the definitions in the SAE chart with some slight modifications:

Name	*Definition*	*Fallback Performance of Dynamic Driving Task*
Driver Assistance	The driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the human driver performs all remaining aspects of the dynamic driving task.[326]	Human Driver
Semi-Automation	(1) the *driving mode*-specific execution by one or more driver assistance systems of both steering and acceleration/ deceleration using information about the driving environment and with the expectation that the *human driver* perform all remaining aspects of the *dynamic driving task*; and (2) the *driving mode*-specific performance by an *automated driving system* of all aspects of the dynamic driving task with the expectation that the *human driver* will respond appropriately to a *request to intervene*.[327]	Human Driver
Full Automation	(1) the *driving mode*-specific performance by an automated driving system of all aspects of the *dynamic driving task*, even if a *human driver* does not respond appropriately to a *request to intervene*; and (2) the full-time performance by an *automated driving system* of all aspects of the *dynamic driving task* under	System

326. SAE International, *supra* note 80.

327. *Id.*

Name	*Definition*	*Fallback Performance of Dynamic Driving Task*
	all roadway and environmental conditions that can be managed by a *human driver.*[328]	

The Author proposed lifting the definitions provided by the SAE. The rationale behind this is that these definitions are widely used by the different states, and even some countries, and by a lot of experts in discussing self-driving vehicles. However, the Author proposes that the levels of automation be split into three categories — Driver Assistance, Semi-Automation, and Full-Automation — for purposes of straightforwardness in determining liability. The definitions of the different levels of autonomy also provide an idea of who is in control; and consequently, the amount of diligence that must be exercised by a person in the self-driving car.

The table above should also be adopted by the Court as guidelines for its own quick reference in understanding the different levels of autonomy and knowing who should be responsible for the vehicle, given the circumstances. This will serve as an alternative to jurisprudence given the lack thereof with respect to autonomous technology.

3. Proposed Self-Driving Car Liability Provisions

As mentioned, the law governing car manufacturer liability is the Philippine Lemon Law. However, based on the law, it only governs manufacturing and design defects that occur within the prescriptive period. It requires the manufacturer to repair or replace the car. However, there is no requirement to reimburse the owner or impute liability on the manufacturer for any injury the self-driving car may cause to a third person. Further, there will be times when the self-driving car meets company standards yet finds itself in an accident. The approach here would be to claim for breach of warranty due to hidden defects. However, the owner will have no more recourse should the accident occur beyond six months, the owner will have no more recourse.

As mentioned, the Author proposes that a law be made defining who will be considered the "manufacturer" — similar to the statutes in the District of Columbia and Florida. This will pinpoint liability directly on the real person who has control over the self-driving technology; and, thus, will be the proximate cause for any injury caused. Further, the law should specify

328. *Id.*

that the "manufacturer" shall be liable for design or manufacturing defects of the program. It shall also provide exceptions to make things fair. For one, the manufacturer should not be liable in case the owner fails to update the program when there is a required update. Another is when the owner tinkers with the computer program. The manufacturer should also not be liable if the vehicle is hacked. The purpose of this law is to ensure that the owner of the vehicle is not held liable for something which he or she cannot control. At the same time, it places liability on the party who has control — the "manufacturer." With self-driving cars slowly becoming a reality, it is time we prepare ourselves for their impending arrival.

The Author, recommends, *first*, the definition of "non-conformity" to be lifted from the Philippine Lemon Law. The definition will provide a broad definition of what a defect is. Thus, if a self-driving motor vehicle does not conform, it would be easy to impute negligence on the part of the manufacturer. Further, the definition in the Philippine Lemon Law provides a vital exception to non-conformity. It exempts the manufacturer from non-conformity if the owner tinkers or does not comply with obligations in the warranty.[329]

Second, the liability of the manufacturer and the automator should be different. The Author proposes adopting the provisions established in the U.S. whereby the manufacturer is not liable when someone else converted the motor vehicle into a self-driving motor vehicle. This is logical given that the person responsible for the autonomous technology is not the original manufacturer.

Third, the Philippines should apply the definition of hidden defects to include self-driving motor vehicles, and should provide for a longer prescriptive period. One of the main issues with respect to self-driving motor vehicles is imputing liability when a self-driving vehicle with full automation gets into an accident not because of non-conformity to standards but because of gaps in the code. It is important to establish provisions to govern this situation to ensure that the owner has a means of recourse when the accident was not his or her fault.

4. Miscellaneous Provisions

Aside from the provisions abovementioned, other provisions may be added.

First, a provision requiring self-driving motor vehicle and autonomous technology registration. The self-driving motor vehicle will still be a motor vehicle. Therefore, the same must undergo registration like any other motor vehicle. The same is necessary to identify the owner of the self-driving

329. Philippine Lemon Law, § 3 (k).

motor vehicles, and the manufacturer or automator, in case of accidents. The provision is similar to the current motor vehicle registration provision but in the context of the self-driving car.

Second, there should be a provision defining traffic rules with respect to self-driving motor vehicles and corresponding penalties.

Third, a provision requiring procurement of a certification that the autonomous technology of the vehicle meets the standards. This is to ensure that the self-driving motor vehicle, before it is released on the road meets standards that make it safe for driving. These standards should be based on the current international standards and modified by the Land Transportation Office (LTO) to meet local conditions. The Author also proposes that the LTO should be aided by the Department of Science and Technology (DOST) and Department of Information and Communications Technology given the nature of the self-driving motor vehicle.

Fourth, the Author also recommends a data recording system. A few countries require such device in self-driving motor vehicles.[330] The data recording system is used merely to determine when the autonomous mode was engaged and disengaged. This will aid the courts and manufacturers in determining whether the cause of the accident was the autonomous technology or the driver of the vehicle. In any case, most self-driving motor vehicles are equipped with this kind of device already.

Fifth, given the circumstance that the one in control of the vehicle is now a computer, new standards of diligence must be established. The statute must contain the obligations and limitations of a driver and operator while inside a self-driving vehicle. The acts that can be done by a human inside a semi-autonomous car, fully autonomous car, and a conventional car are different.

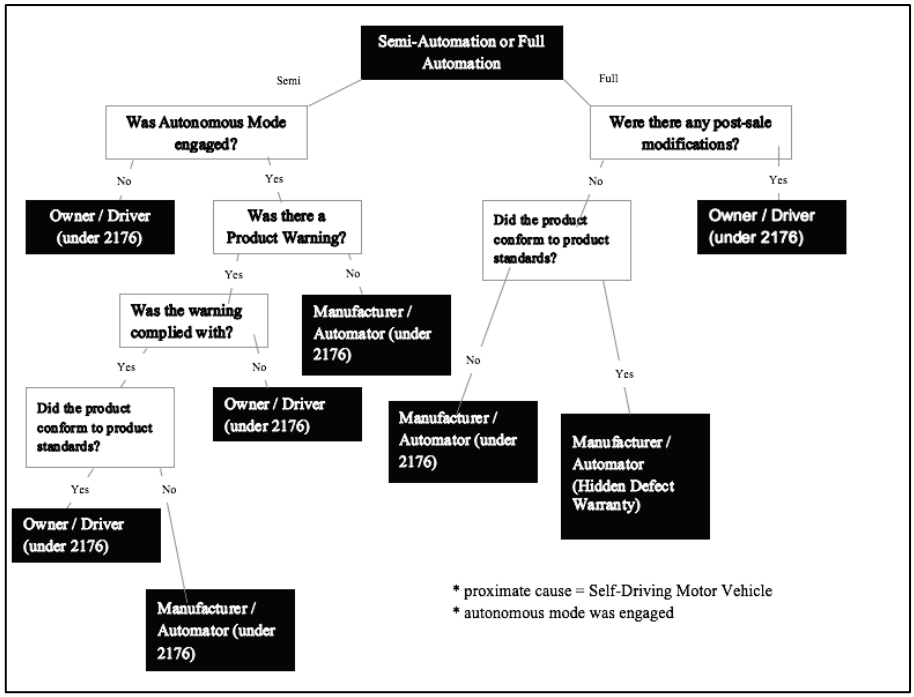
B. Proposed Self-Driving Car Liability Framework

In order to comply with the constitutional directive to promote technology, a self-driving liability framework must be established. As mentioned, most likely liability will shift towards the manufacturer who replaced the human driver with a computer. These manufacturers will effectively be in control of the act of driving. A motor vehicle accident in the coming years will be caused by a computer and not by a human driver. Therefore, when tracing the one who should be responsible, it will end up on the manufacturers lap. However, as mentioned, this will be detrimental to the development of such

330. Draft Act to Amend the Road Traffic Act [Cabinet Draft], BUNDESRAT DRUCKSACHEN [BR] 69/17 (Ger.), *available at* https://www.bundesrat.de/SharedDocs/drucksachen/2017/0001-0100/69-17.pdf?__blob=publicationFile&v=9 (last accessed Feb. 29, 2020).

technology and it will also be unfair to the manufacturer. Not all accidents will be caused solely by the manufacturer. There will be instances when the motor vehicle accident will also be caused by the owner or something else. Thus, to ensure that innovation is not prejudiced, a legal framework for determining liability should be established. The legal framework should be in the form of a Supreme Court Circular, containing the thought process and legal bases laid down below, which will serve as a guideline for the lower courts in resolving cases involving self-driving car accidents.

The Author recommends the following legal framework:



The legal framework basically makes a distinction between semi-autonomous vehicles and fully autonomous vehicles. The reason for the distinction is the amount of control over the vehicle. Manufacturers have entire control over a fully autonomous car, except for certain scenarios; while the driver or owner has control over the semi-autonomous car.

If the self-driving car is semi-autonomous, the courts shall follow the flow under the "semi" option. First, the determination will be whether the car's "Autonomous Mode" was engaged or not. If not, the situation is akin to conventional driving because a human is the one driving. Thus, the owner or driver is liable under 2176 of the Civil Code. However, if the semi-autonomous self-driving car is on "autopilot" or any function akin to semi-automation, the Courts will then have to determine whether there

were any warnings or notifications prior to the accident. These vehicles will most likely come with product manuals informing the owner of the "do's and don'ts" of such vehicles. Moreover, with semi-autonomous self-driving cars, they will most likely have warning signals to notify the driver or person in the vehicle that these need to take control.

These warning signals are vital in determining liability. The presence of these signals will determine the owner's knowledge of the outcome of his or her acts or omissions. However, the liability will also depend on how specific the warning is. The warning must mention the ramifications of failure to comply with such warnings in order for the owner to understand the diligence required. Absent a specific warning, or any warning for that matter, the manufacturer should be held liable. The presumption being that the manufacturer believed that there was no need for human intervention. Thus, the driver had the right to assume that he or she was not required to exercise diligence.

On the other hand, non-compliance with the warnings will make the owner or driver liable. The rationale for applying tort law when there was a warning is because, at this moment, the person in control was aware of the repercussions but failed to do anything about it. The warning could be in the form of "do's and don'ts" in a product manual. Another form of a warning which is most likely present in partially autonomous self-driving cars is the notification to the driver to take control. In these instances, the owner and/or driver is aware of that there is a diligence that must be exercised yet he or she did not. Thus, negligence can be imputed on the driver for not taking control when he or she is required to.

If the self-driving car is *fully* autonomous, the courts shall follow the flow under the "Full" option. The first determination is whether there were any post-sale modifications by the owner. These post-sale modifications can happen when the owner tinkers with the programming of the vehicle changes settings placed by the manufacturer. The rationale behind this is because the owner changed the standards and specifications by the act of tinkering. Thus, fault can be imputed on him or her. Further, the proposed special law, and even the Lemon Law, exculpates the manufacturer from liability in this situation.[331] Therefore, the owner or driver should be liable.

A different approach will be taken if the owner did not apply any post-sale modifications. The fully autonomous self-driving motor vehicle, without any post-sale modifications, that causes an accident will most likely be due to the negligence of the manufacturer. The self-driving car, in this instance, is the product sold by the manufacturer in its purest form. Liability cannot be imputed on the owner because he or she had no participation or

331. Philippine Lemon Law, §§ 3 (k) & 4.

contribution in the accident. Thus, imputing liability on him or her would be unjust.

However, another scenario is when the fully autonomous car conforms to the standards set yet still finds itself in an accident. The manufacturer proved that the self-driving vehicle did what it was supposed to do in such a situation. Applying the current liability framework, the owner only has six months from delivery to claim damages. The problem with this is when the accident happens beyond the six-month period. Nevertheless, the owner can claim for damages under the proposed law within five years from the accident. Therefore, the owner is not left without any recourse.

This flowchart is meant to cover accidents when the self-driving motor vehicle was the proximate cause, whether fully or partially autonomous. Here are some hypothetical scenarios of self-driving car accidents and how the framework is applied:

(1) Scenario A: Using the hypothetical situation mentioned in the Introduction.

In this instance, the one to be held liable is Andrei, the owner of the self-driving car. First, based on the situation, the car is semi-autonomous because the computer offered Andrei the option to drive. Being a partially autonomous self-driving car, the next step would be to determine if there was a warning. The hypothetical situation did not mention any warning. Assuming there was a notification that Andrei must take control of the vehicle, he must be held liable. On the other hand, the absence of such warning will give rise to the application of product liability.

(2) Scenario B: Using the same hypothetical situation mentioned in the Introduction, except this time the self-driving car is Fully Autonomous.

In this instance, a different approach will be taken in determining how responsibility should be imputed. Unlike in the previous scenario, this situation involves a fully autonomous self-driving motor vehicle. As mentioned, these cars will most likely be fully controlled by the computer and will not have any or require any human intervention. Thus, in this situation, the owner is not required to monitor his surroundings and has the right to assume a safe voyage. The courts will, then, determine if there were any post-sale modifications made by the owner. Assuming there were none, the fault was entirely the manufacturer's and product liability should be applied. However, if there were, the manufacturer is absolved from liability. Therefore, the registered owner, Andrei, is liable.

(3) Scenario C: Andrei owns a fully autonomous self-driving car without any modifications. After work, Andrei got picked up by his fully autonomous self-driving and went straight home.

> Instead of getting into an accident, Andrei arrived home safely. He rushed to bed and went to sleep. Too tired, he forgot to turn off his car. He fell asleep while checking his social media accounts and, as he dozed off, his head tapped the deploy button. Consequently, his car went on a journey and got into an accident.

In this case, being a fully autonomous car, the courts will follow the "Full" portion of the framework. It has no post-sale modifications and, therefore, the next determination is whether the self-driving vehicle was deployed negligently. In this case, Andrei negligently deployed the self-driving vehicle in his sleep. However, the situation is no different from a situation where the self-driving vehicle was on its way to pick a person up or where the operator was in the vehicle asleep. The fully autonomous self-driving motor vehicle should have functioned the same way in either scenario. Thus, this situation is not any different. The only thing the owner-operator loses in this scenario is his gasoline.

(4) Scenario D: Claud tells her fully autonomous self-driving motor vehicle, with no modifications, to pick her up. Along the way, and with no one in the vehicle, it gets into an accident injuring other people.

In this scenario, the "Full" path of the legal framework will be used. In this scenario, product liability will apply because it is still within the control of the manufacturer. The car is expected to function properly, especially absent any modifications done by Claud. Thus, liability is imputed on the manufacturer.

(5) Scenario E: Angelo owns a fully autonomous self-driving motor vehicle. However, ever since he bought it, he has always been late to work. He gets so frustrated because it moves so slow. He takes it to Greenhills and asks the people if there is a way to jailbreak the autonomous technology. Unsurprisingly, they do. He asks them to modify the speed limit to a few kilometers/hour a bit higher. After that day, Angelo has never been late for work. However, one day, Angelo's self-driving car gets into an accident.

The path in the flowchart will be the "Full Chart". However, unlike the previous situations, the path where there has been a post-sale modification will. In this scenario, Angelo is liable. The post-sale modification installed by Angelo exculpates the manufacturer.

(6) Scenario F: Paolo deploys his fully autonomous self-driving motor vehicle with no post-sale modifications. Kiel also deploys

his fully self-driving vehicle with no post-sale modifications. They both get into an accident.

In this case, since both vehicles are fully autonomous, the "full" path of the framework should be followed. The manufacturer is liable in this case because there were no post-sale modifications. In this case, the manufacturer of the self-driving motor vehicle which was the proximate cause should be held liable.

(7) Scenario G: Paolo deploys his fully autonomous self-driving motor vehicle with post-sale modifications. Kiel also deploys his fully self-driving vehicle with post-sale modifications. They both get into an accident.

In this case, since both vehicles are fully autonomous, the "full" path of the framework should be followed. However, unlike in the immediately preceding scenario, the owner or operator is liable in this case because there were post-sale modifications. In this case, the owner or operator of the self-driving motor vehicle which was the proximate cause should be held liable.

(8) Scenario H: Paolo deploys his fully autonomous self-driving motor vehicle with post-sale modifications. Carmel was driving her semi-autonomous self-driving vehicle which was on autopilot. While Carmel was texting, the two vehicles collided.

In this case, the path to be followed will depend on which vehicle was the proximate cause. If the fully autonomous self-driving vehicle was the proximate cause, the manufacturer should be held liable. On the other hand, if the semi-autonomous self-driving vehicle was the proximate cause, the "Semi" path must be followed. Assuming there was no warning, the manufacturer should be held liable. However, if there was, the next step to do is to determine whether the warning was complied with. In this case, Carmel was texting prior to the accident. Clearly, then, the warning was not complied with. Therefore, Carmel should be held liable.

(9) Scenario I: Charles is on his way to Baguio and is currently on the North Luzon Expressway (NLEX). Having left at such an ungodly hour, he decides to switch on autopilot. However, the vehicle notifies Charles that the breaks are failing. Exactly seven seconds later, it hits a truck. Charles does not make it.

In this instance, the path to be followed is the "Semi" path. The next step is determining whether there was any warning. The vehicle warned the owner to take control due to the failing brakes. Sadly, Charles should be responsible because, being partially automated, it is presumed that he is still monitoring the vehicle. Further, the vehicle gave warning about the impending accident and, after seven seconds of inaction, the accident happened. Thus, the owner or driver should be liable.

This scenario is similar to the first ever casualty involving the Tesla Autopilot.[332] In this situation, the NHTSA conducted an investigation and simulated the accident.[333] They found that the Tesla Autopilot was not at fault because the driver had seven seconds to react but failed to do so.[334] Being partially autonomous, the driver should have still been monitoring the road.[335] It is worth noting the Tesla Autopilot has no warning signal but the NTHSA still found that the autopilot was not at fault.[336]

C. Annex: Model Legislation

Republic of the Philippines
Congress of the Philippines
Metro Manila

[n-th] Congress
[n-th] Regular Session

Begun and held in Metro Manila, on [day of the week], the [nth] day of [month], two thousand eighteen.

REPUBLIC ACT No. ____

AN ACT DEFINING SELF-DRIVING CARS, PROVIDING REGULATORY MECHANISMS, PRESCRIBING PENALTIES THEREFOR, AND FOR OTHER PURPOSES.

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

Section 1. Title of Act. — This Act shall be known as the "Philippine Self-Driving Vehicle Act."

Section 2. Scope of Act. — The provisions of this Act shall control, as far as they apply, the registration and operation of *self-driving* motor vehicles and the licensing of owners, dealers, conductors, drivers, and similar matters.

332. Danielle Muoio & Reuters, The government just closed its investigation into the first Tesla Autopilot fatality, *available at* https://www.businessinsider.com/report-government-closing-tesla-autopilot-fatality-investigation-2017-1 (last accessed Feb. 29, 2020).

333. *Id.*

334. Muoio, *supra* note 304.

335. Muoio & Reuters, *supra* note 332.

336. *Id.*

Section 3. Words and phrases defined. — As used in this Act:

(a) "Motor Vehicle" shall mean any vehicle propelled by any power other than muscular power using the public highways, but excepting road rollers, trolley cars, street-sweepers, sprinklers, lawn mowers, bulldozers, graders, fork-lifts, amphibian trucks, and cranes if not used on public highways, vehicles which run only on rails or tracks, and tractors, trailers and traction engines of all kinds used exclusively for agricultural purposes.

Trailers having any number of wheels, when propelled or intended to be propelled by attachment to a motor vehicle, shall be classified as separate motor vehicle with no power rating.[337]

(b) "Self-driving vehicle" means any vehicle equipped with autonomous technology that has been integrated into that vehicle. The term "autonomous vehicle" excludes a motor vehicle enabled with active safety systems or driver- assistance systems, including systems to provide electronic blind-spot assistance, crash avoidance, emergency braking, parking assistance, adaptive cruise control, lane-keep assistance, lane-departure warning, or traffic jam and queuing assistance, unless the system alone or in combination with other systems enables the vehicle on which the technology is installed to drive without active control or monitoring by a human operator.[338]

(c) "Autonomous technology" means technology that has the capability to drive a vehicle without the active physical control or monitoring by a human operator.[339]

(d) "Autonomous Mode" means that the motor vehicle is being controlled by autonomous technology.

(e) "Artificial intelligence" shall mean the use of computers and related equipment to enable a machine to duplicate or mimic the behavior of human beings.[340]

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337. Land Transportation and Traffic Code, § 3 (a).

338. The provision was lifted from the California Vehicle Code and the DC Autonomous vehicle act. The two provisions were combined. CAL. VEH. CODE § 38750 (a) (2) (A) & Autonomous Vehicle Act of 2012 § 50–2351, 49 U.S.C. § 301.

339. CAL. VEH. CODE, § 38750 (a) (2) (A).

340. An Act relating to transportation; providing certain privileges to the owner or long-term lessee of a qualified alternative fuel vehicle; authorizing in this State the operation of, and a driver's license endorsement for operators of, autonomous vehicles; providing a penalty; and providing other matters properly relating thereto, Assembly Bill No. 511, § 3 (a), Nevada Legislature, 76th Sess. (2011).

(f) "Driver" shall mean every and any licensed *human* operator of a motor vehicle.[341]

(g) "Operator" shall mean a person who engages the self-driving car, regardless of whether he is a passenger or not.[342]

(h) "Owner" shall mean the actual legal owner of a motor vehicle, in whose name such vehicle is duly registered with the Land Transportation Commission.[343]

(i) "Manufacturer" refers to any person, natural or juridical, engaged in the business of manufacturing or assembling motor vehicles.

(j) "Automator" refers to any person, natural or juridical, engaged in the business of converting motor vehicle into self-driving motor vehicles.[344]

(k) "Semi-Automation" shall mean (1) the driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/ deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task; and (2) the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene.

(j) "Full Automation" shall mean (1) the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene; and (2) the full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver.

(k) "Driver Assistance" shall mean the driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task.

(k) "Nonconformity" refers to any defect or condition that substantially impairs the use, value or safety of a brand new motor vehicle which prevents

341. This provision is a derivative of the original provision except the word "human" was added for the purposes of this recommendation. Land Transportation and Traffic Code, § 3 (d).

342 This provision was derived from the Florida House Bill which was signed into law. FLA. STAT. §1 (2019).

343. Land Transportation and Traffic Code, § 3 (f).

344. Autonomous Vehicle Act of 2012, § 4.

it from conforming to the manufacturer's or distributor's standards or specifications, which cannot be repaired, but excluding conditions resulting from noncompliance by the consumer of his or her obligations under the warranty, modifications not authorized by the manufacturer or distributor, abuse or neglect, and damage due to accident or force majeure;[345]

(l) "Hidden Defects" refers to unknown or could not have been known[346] to the manufacturer or the automator.

Section 4. All *self-driving vehicles* and must be registered.

(a) No *self-driving* motor vehicle shall be used or operated on or upon any public highway of the Philippines unless the same is properly registered for the current year in accordance with the provisions of this Act.

(b) Any registration of motor vehicles not renewed on or before the date fixed for different classifications, as provided hereunder shall become delinquent and invalid.

3. All other motor vehicles — from June one to the last working day of June; except when the plates of such motor vehicles are returned to the Commission in Quezon City or to the Office of the Motor Vehicles Registrar in the provincial or city agency of the Commission on or before the last working day of December of the year of issue.

(c) Dealer's reports — The Commissioner of Land Transportation shall require dealers of self-driving motor vehicles to furnish him/her with such information and reports concerning the sale, importation, manufacture, number of stocks, transfer or other transactions affecting motor vehicles as may be necessary for the effective enforcement of the provisions of this Act.

(d) *Automator's* reports — The Commissioner of Land Transportation shall require *automators* of *self-driving* cars to furnish him/her with such information and reports concerning the conversion of motor vehicles into self-driving motor vehicles as may be necessary for the effective enforcement of the provisions of this Act.

Section 5. Issuance of certificates of registration. — A properly numbered certificate of registration shall be issued for each separate *self-driving motor vehicle* or *autonomous technology for vehicles converted* after due inspection and payment of corresponding registration fees.

Section 6. Duty to procure license. — Except as otherwise specifically provided in this Act, no person shall operate any *semi-autonomous* motor vehicle without first procuring a license to drive a motor vehicle for the

345. Philippine Lemon Law, § 3 (k).

346. *Supercars Management*, 446 SCRA at 42 (citing *Knecht*, 158 SCRA at 83).

current year, nor while such license is delinquent, invalid, suspended or revoked. The license shall be carried by the driver at all times when operating a *semi-autonomous* motor vehicle, and shall be shown and/or surrendered for cause and upon demand to any person with authority under this Act to confiscate the same.[347]

Section 7. Traffic Rules. — All the traffic rules enumerated in Chapter IV Traffic Rules of the Land Transportation and Traffic Code of the Philippines must be followed for all self-driving motor vehicles. For self-driving vehicles with full and high automation, the traffic rules must be inputted in the programming of the autonomous technology.

Section 8. Duty to procure autonomous technology certification. — Except as otherwise specifically provided in this Act, no *self-driving* motor vehicle or *autonomous technology* with *full or high automation* can be sold or without first procuring a *certificate of compliance with driving and autonomous technology standards*. The standards for autonomous vehicles established this law will be implement by the LTO with recommendation of DICT, DOTr, DOST, and competent experts in the field of robotics and autonomous technology.

Section 9. Data Processing Requirement. — *Self-driving motor vehicles* with semi-automation must be able to store the time information determined by a satellite navigation system when a change of vehicle control between the driver and the highly or fully automated system takes place. Such storage also occurs when the driver is prompted by the system to take control of the vehicle or a technical failure of the system occurs.

(2) The data recorded in accordance with paragraph (1) may be transmitted to the authorities responsible for the sanctioning of traffic offenses and *motor vehicle accidents* when they request the data. The transmitted data may be stored and used by them. The extent of the transmission of data shall be limited to what is necessary for the purpose of establishing paragraph (1) in the context of the control procedures put in place by those authorities. This does not affect the general rules governing the processing of personal data.[348]

347. The provision was derived and edited from the Land Transportation and Traffic Code. Land Transportation and Traffic Code, § 19.

348. Straßenverkehrsgesetz [StVG] [Road Traffic Act], Mar. 5, 1909, BGBL, last amended by Gesetz [G], July 17, 2017, BGBL at § 63(a) (Ger.), *available at* http://www.gesetze-im-internet.de/stvg/StVG.pdf (last accessed Feb. 29, 2020).

Section 10. Responsibilities of the Driver and Operator. — (1) The driver or operator of a self-driving motor vehicle with full automation may turn away his attention from the traffic and the vehicle control when autonomous mode is engaged; (2) The driver or operator of a self-driving motor vehicle with semi-automation is obliged to take over the motor vehicle immediately when the automated system asks him/her to do so or if he/she recognizes or, on the basis of obvious circumstances, realizes that the prerequisites for the intended use of the automated system driving functions no longer exist.[349]

Section 11. Penalties for violations. — The penalties enumerated in Chapter V, Article I of the Land Transportation and Traffic Code shall be applicable to self-driving cars.

Section 12. Liability of manufacturers. — The registered owner of the self-driving car shall be primarily liable for the violations and injuries caused by his self-driving vehicle regardless of the cause without prejudice to his right to seek compensation from the manufacturer or dealer for violations and injuries caused by non-conformity.

Section 13. Limited Liability. — The original manufacturer of a vehicle converted by a third party into an autonomous vehicle shall not be liable in, and shall have a defense to and be dismissed from, any legal action brought against the original manufacturer by any person injured due to an alleged vehicle defect caused by the conversion of the vehicle, or by equipment installed by the converter, unless the alleged defect was present in the vehicle as originally manufactured.[350]

Section 14. Prescriptive Period for Hidden Defects. — The prescriptive period for hidden defects of self-driving motor vehicles shall be five (5) years from the date of delivery of the self-driving vehicle.

Section 15. Separability Clause. — If, for any reason, any part or provision of this Act is declared invalid, such declaration shall not affect the other provisions of this Act.

Section 16. Rules not subject to the provisions of this Act. — Rules and regulations not covered by this Act concerning motor vehicles shall be governed by the Land Transportation and Traffic Code.

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349. *Id.* § 1 (b).

350. The provision is derived from the DC law. Autonomous Vehicle Act of 2012, § 4.

Section 17. Repealing Clause. — All laws, decrees, executive orders, issuances, rules and regulations or parts thereof which are inconsistent with the provisions of this Act are hereby deemed repealed, amended or modified accordingly.

Section 17. Effectivity. — This Act shall take effect fifteen (15) days after its publication in the Official Gazette or in any newspaper of general circulation.

Approved: _____