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The Self-Driving Vehicle and the Need to Innovate Philippine Consumer Protection Laws and other Policy Considerations

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Abstract

As part of the Fourth Industrial Revolution's digital frontier, Self-Driving Vehicles (SDVs) have revolutionized the automotive industry by significantly improving traffic conditions, reducing energy-related costs, and yielding high net economic and social benefits. However, the rapid emergence of this technology has exposed discrepancies in the law and regulatory policies. This paper examines the existing legal framework on road traffic laws with the legality of the presence and operation of SDVs in the Philippines. It also examines the Consumer Act of the Philippines and its need to (1) officially recognize the Society of Automotive Engineers (SAE) International and/or the U.S. National Highway Traffic Safety Administration (NHSTA) classifications of SDVs; (2) define the relationship between software manufacturers and SDV manufacturers; (3) make the "risk-utility test" the official yardstick in determining product liability of SDVs; and (4) mandate SDV manufacturers to design warnings which are not only clear, but are designed to be appealing, compulsory, and readily-accessible— even to the point of recurring — for the inattentive driver.

Keywords: *Digital Technologies, Self-Driving Vehicle, Consumer Laws, Road Traffic, Manufacturer's Liability*

Introduction

Although featured in films such as "Magical Highway USA" (1958), self-driving vehicles (SDVs) used to be figments of imagination. It was not until 1977 that Dr. Sadayuki Tsugawa and his colleagues in Japan's Tsukuba Mechanical Engineering Laboratory created the prototype of a truly autonomous vehicle. The car used analog computer technology for signal processing and attained speeds up to 30 km/h (18.6 mph) (Dormehl & Edelstein, 2019). Thirty years later, autonomous vehicles capable of performing complex maneuvers such as merging, passing, parking, and negotiating intersections were already participating in prize competitions organized by the U.S. Defense Advanced Research Projects Agency (DARPA) (Dormehl & Edelstein, 2019). Since then, more car manufacturers began to develop SDVs, and the rest, as they say, is history.

Today, the SDV industry is a market filled with unprecedented technological breakthroughs and huge investments. Traditional and non-traditional car manufacturers alike, as well as other tech and ridesharing companies, take a shared interest in the emerging technology (Howe, 2018). To keep pace with the fast-paced industry, the Society of Automotive Engineers (SAE) International published J3016 — a taxonomy of SDV capability. It consists of six (6) levels of driving automation, ranging from no driving automation (level 0) to full driving automation (level 5) (SAE International, 2014). At present, most SDVs include semi-autonomous driving features that fall under Level 3 category. A Level 3

automated driving system allows the vehicle to monitor the road and make informed decisions. However, human drivers using Level 3 SDVs must remain alert since they are required to intervene upon failure of the vehicle to perform (SAE International, 2018).

With self-driving cars already a reality, consumers found themselves basking in the car manufacturers' promise of a safer means of mobility. That was until May 7, 2016, when a 40-year-old American, David Brown, died behind the wheel of a 2015 Tesla Model S while in autopilot mode. Upon investigation, the U.S. National Highway Traffic and Safety Administration (NSTA) found no safety defect in Tesla's design or performance, although the incident still raised serious questions on the safety of auto-piloted vehicles and the responsibility of the manufacturer (Quandt, n.d.).

Despite what seemed to be a setback, automakers and tech companies remain committed to autonomous vehicles (Howe, 2018). The prospect of SDVs hitting the streets of the Philippines has not escaped the attention of policymakers. Insurance Commissioner Dennis Funa reportedly said that "…when the time comes, the regulatory framework would have to be set in place to address the various concerns that will arise with the advent of driverless vehicles," (Soliman, 2017) and concluded that "Philippine laws would have to be amended" (Caraballo, 2017). With the foregoing circumstances in mind, one cannot help but ask— how do SDVs fit within the Philippine legal framework, particularly on laws that protect consumers?

Framework

This paper does not suggest that the Philippines should ban SDVs. On the contrary, this paper argues that the Philippines' domestic laws, particularly those concerning road traffic and consumer protection, must be amended to address possible issues which may crop up upon the arrival of SDV technology in the country. Otherwise, the Land Transportation Office (LTO), the Land Transportation and Regulatory Franchising Board (LTFRB), and allied regulatory agencies may perform acts, or issue regulations which could be questioned, and eventually resolved as *de facto*, if not void. In the same wise, present laws may compromise a consumer's ability to exact liability against the SDV manufacturer in case of design defect.

Methodology

This doctrinal research is based on the paper entitled "The Self Driving Car and its Compatibility with the Philippine Legal Framework on Traffic Laws, Civil Liability, and Consumer Rights," which Atty. Jan Raphael Salud submitted to the Ateneo Graduate Legal Studies Institute for his Consumer Law class.

This paper took into account the 1949 (Geneva) and 1968 (Vienna) Conventions on Road Traffic, Republic Act No. 4136, otherwise known as the Land Transportation and Traffic Code, the Civil Code of the Philippines, and Republic Act No. 7394 or the Consumer Act of the Philippines. Relevant court decisions, law journals, and news articles were also used in this research. These references were thoroughly examined to assess whether the Philippines' existing legal framework adequately sanction the operation of SDVs in the country. As consequence, policy gaps which are detrimental to consumers and manufacturers were exposed.

Discussion of Results

The primary feature that sets apart self-driving vehicles (SDVs) from the traditional type is the capability of the SDV to operate independently of the human driver. At present, however, the SDVs out in the market are not yet fully-automated; the driver assistance technology installed performs ordinary driving tasks, although the human driver may intervene upon his or her discretion – and as required by law. Although it is forecasted that full automation and highway autopilot will be available by 2025 with about 8 million SDVs on the road (Litman, 2020).

According to the World Health Organization (2020), approximately 1.35 million deaths due to road accidents occur annually, 94% of which are caused by human error such as speeding and distracted driving. Developers of autonomous technology assure fewer incidence of road accidents upon the widespread use of SDVs (Ramsey, 2015). Traffic congestion is mitigated as well, as the software installed in the SDV search for better routes (Ryan, 2019). Furthermore, SDVs make transportation more accessible to senior citizens and persons with disabilities (Ryan, 2019). Lastly, SDVs bring about environmental advantages in the form of energy savings, less air pollution, and efficiency of transportation (Ryan, 2019).

Types and Levels of Automation

A *continuum* exists between conventional or human-driven vehicles, and SDVs, which partially or fully drive themselves without the aid of a physical driver (Wang et. al., 2010). This *continuum* exists because the task of driving requires a perception of information, a decision based on that information, and the execution of that decision (Wang et. al., 2010). Moreover, it has been misconstrued that the word "autonomous" conveys an absolute absence of any human intervention. (Anderson et. al., 2014). To clarify this *continuum*, the Society of Automotive Engineers (SAE) International published J3016 — a taxonomy consisting of six (6) levels of driving automation in the context of motor vehicles and the role of human drivers in performing driving tasks and monitoring the driving environment. The taxonomy ranges from no driving automation (level 0) to full driving automation (level 5) (SAE International, 2018).

Figure 1

SAE J3016: Levels of Driving Automation (SAE International, 2018).

<table>
<tr><th></th><th>Level 0</th><th>Level 1</th><th>Level 2</th><th>Level 3</th><th>Level 4</th><th>Level 5</th></tr>
<tr><td rowspan="2">Responsibility of Human Driver</td><td colspan="3">Drive the vehicle undeterred by the employment of driver support features.</td><td rowspan="2">Drive upon the request of the automation system.</td><td rowspan="2">Human driver override is an option.</td><td rowspan="2">Human driver interaction is not necessary.</td></tr>
<tr><td colspan="3">Maintain safety and constantly oversee the driver support features.</td></tr>
<tr><td></td><td colspan="3">Driver Support Features</td><td colspan="3">Automated Driving Features</td></tr>
<tr><td>Features</td><td>Only provides warnings and cursory assistance.</td><td>Supports steering, and brake or acceleration while human driver is driving.</td><td>Supports steering, and brake and acceleration while human driver is driving.</td><td colspan="2">Performs driving upon fulfillment of all required conditions.</td><td>Performs driving under all conditions.</td></tr>
</table>

The U.S. Department of Transportation has adopted these levels of driving automation as a federal policy for safe testing and deployment of SDVs. The J3016 also became the accepted global standard for SDVs since it exhibits "the core reference and guideline for all stakeholders in this transformational technology" (Ilka & Ilková, 2017).

J3016 serves the initial regulatory framework and guideline for manufacturers and developers in advancing SDV technology. With safety as its primary consideration, J3016 explains the levels of automation not by technical jargon but by using "consumer-friendly" terms. The establishment of the taxonomy is crucial because automotive companies may employ aggressive marketing tactics that may mislead the consuming public of the vehicle's actual capabilities. Drivers who rely on the promise may be prompted to be inattentive and depend fully on the "auto-pilot" system.

International Treaties and Agreements

The sophisticated levels of SDV automation have prompted legal scholars to question whether states may, under international law, allow driverless vehicles to operate within their jurisdiction. These international laws are the 1949 (Geneva) and 1968 (Vienna) Conventions on Road Traffic. These treaties, "[which promote] the development and safety of international road traffic by establishing certain uniform rules," (Geneva Convention on Road Traffic, 1949) constitute the minimum regulations to be observed by vehicles traveling inside the borders of their country of origin so that foreign motorists would roughly know the standard of behavior to expect (United Nations Economic and Social Council, 1949, as cited in Smith, 2014).

SDVs were not explicitly recognized in both treaties. The defining feature that incited debate is the equivalence of a "computer driver" to a physically present driver. Bryan Walker-Smith, an assistant professor at the University of South Carolina, advances the theory that the requirement under the 1949 (Geneva) treaty is satisfied so long as the driver is in control of the vehicle, whether the driver is human or electronic (Smith, 2014). He argues that "control" is nothing more than the power to determine the scope, range, or effect of a given activity (Axcelis Techs. v. Applied Materials, Inc., 2002). Hence, the term "driver," as used in the treaty, is flexible enough to comprehend a computer.

The 1968 Vienna Convention, which replaced the Geneva Convention, is clearer as to what constitutes a "driver" – alluding to human drivers rather than a computer. The 1968 version explicitly required drivers to "possess the necessary physical and mental ability and be in a fit physical and mental condition to drive" (Vienna Convention on Road Traffic, 1968, Article 8(3)). Later, an amendment to the Vienna Convention was added to address the issue of distracted driving (Vienna Convention on Road Traffic, 1968, Article 8(6)). This amendment is consistent with the observation that the 1968 convention requires a human driver, otherwise, there would be no need for the amendment. It is safe to assume that only human drivers could be distracted as computers could easily multi-task without necessarily affecting performance.

Smith argues that the United States is not violating its treaty obligations by allowing SDVs to operate within its jurisdiction because while it is a state-party to the 1949 (Geneva) treaty, it is not a signatory to the 1968 (treaty) version.

While a state party to both treaties, the Philippines is bound by the 1968 (Vienna) convention. Article 48 of the Vienna Convention expressly terminated and replaced the

provision of the 1949 (Geneva) treaty insofar as contracting parties' relations to one another. The Philippines, therefore, is obliged by treaty to ensure that a human driver is behind the wheel of motor vehicles operating within its jurisdiction.

Domestic Traffic Laws

Republic Act No. 4136, otherwise known as the Land Transportation and Traffic Code, came into law in 1964 and governs the registration and operation of motor vehicles in the country.

Section 3(a) of RA 4136 (1964) defines a motor vehicle as any vehicle propelled by any power other than muscular power using the public highways. Since SDVs were still inconceivable at the time the law was passed, legislators saw no need to explicitly state that human drivers must be present behind the wheel. However, there are provisions in the law which implies the necessity of a human driver. For instance, RA 4136 categorically states that drivers of a motor vehicle must be duly licensed. To obtain the license, the applicant must, among others, be devoid of highly contagious diseases and have "normal sight and hearing. These qualifications could only apply to natural persons.

In addition, Section 55 of RA 4136 obligates drivers to remain at the scene of the accident in case of vehicular accidents. He can only be excused from this duty: (1) to report the accident; (2) to summon a physician; or (3) when he is in imminent danger of being seriously harmed by any person by reason of the accident.

While it could be argued that SDVs can be programmed to follow the first two protocols, the third protocol recognizes the instinct of self-preservation— an instinct exclusively applicable to natural beings.

Product Liability Laws

The civil liability of manufacturers and sellers for defective products may be based on fraud, warranty, negligence, or strict liability (Coca Cola Bottler's Philippine v. Court of Appeals, 227 SCR2A 293 [1993], as cited in Aquino, 2005).

Fraud or Misrepresentation

Under the Civil Code, fraud is committed when one is induced to enter a contract due to insidious words or machinations by the other contracting party (Civil Code of the Philippines, Article 1338). Considering that SDVs are highly complex pieces of machinery, dealers, manufacturers, and even repair shop owners are likely to take advantage of their customers' credulity on the SDVs' capabilities.

However, a civil case based on fraud unduly burdens the complainant who must prove the commission of the fraudulent act (Mindanao State University v. Roblett Industrial and Construction Corporation, 2004).

Fortunately, RA 7394 (1992), otherwise known as the Consumer Act of the Philippines, introduced another avenue to protect consumer rights. Under RA 7394, complaints against manufacturers and sellers who commit deceptive transactions, false representations, or fraudulent manipulations may be filed before the Department of Trade and Industry (DTI).

Section 50 of the Consumer Act enumerates ten (10) deceptive practices. While the list is not exclusive, one item which may find relevance to SDVs is item (b). Under the said item, a seller or supplier commits a deceptive act when he represents that "a consumer product or service is of a particular standard, quality, grade, style, or model when in fact it is not." To enforce this provision, DTI representatives usually require sellers to show certificates or documents evidencing compliance to such standards.

Unfortunately, the Philippine government has yet to officially recognize the J3016 taxonomy of SDVs. Under the Civil Code, dealers who resort to usual exaggerations in the trade do not necessarily commit fraud unless they had claimed to be experts, and unless the buyer had no opportunity to know the facts. Without the taxonomy, DTI would have no exacting standards to tell the deceptive salesmen and the negligent buyers from the innocent.

Warranty

Warranties are primarily governed by the Civil Code and are supplemented by the provisions of the Consumer Act of the Philippines and, insofar as motor vehicles are concerned, by the Philippine Lemon Law. There are two types of warrant: the express and the implied.

Express warranties are positive assertions by the seller. On the other hand, implied warranties are inferred from the nature of the transaction, the relative situation, or the circumstances of the parties, irrespective of any intention of the seller to create it (Ang v. Court of Appeals, G.R. No. 177874 [2008], as cited in De Leon, 2011). One type of implied warranty is the warranty against hidden defects. A possible hidden defect in SDVs is software.

The Consumer Act holds the car manufacturer liable for damages. Section 106 further states "if the damage is caused by a component or part incorporated in the product…its manufacturer, builder or importer and the person who incorporated the component or part are jointly liable." This means that if a consumer sustained an injury due to a defective SDV software, the obligation shall be divided between the car manufacturer and the software designer. Note, however, that their obligation is joint. This means that the damages to be paid shall be divided into as many defendants as there are, and each defendant shall be liable only for a proportionate amount of the damage caused. This is disadvantageous to the consumer who may be unable to recover against an insolvent defendant.

The above disquisition is based on the premise that "software" is a component of SDVs. But are they? Unfortunately, this matter is still up for debate. Some argue that liability should be imposed on the programmers who designed the software, whereas others suggest that SDV manufacturers should be solely responsible because the software is "intrinsic" to product (Kim, 2018). In any case, it may be best for Congress to strictly define the responsibility of the software designer and SDV manufacturers or perhaps, to avoid complications, make their liability solidary instead of joint.

Strict Liability Rules

The use of the phrase "independently of fault" in Article 97 of the Consumer Act is significant because it reveals that the law exacts upon manufacturers the theory of "strict liability" (Aquino, 2005).

Traditionally, the concept of strict liability applies to manufacturers and processors of foodstuffs, toilets, and similar goods for the death or injuries caused by any noxious or harmful substances used in their products (Civil Code of the Philippines, Article 2187). However, the Consumer Act has broadened the theory's application to cover all types of products provided that: first, they are within the definition of what constitutes as "defective;" and second, there are no circumstances which exonerate manufacturers from responsibility. Under the strict liability rule, manufacturers are liable regardless of whether they exercised the duty of reasonable care because the exercise of due diligence is not a valid defense.

Defective Product

There are three (3) types of defect: manufacturing defect, design defect, and warning defect (Anderson et. al., 2014).

Manufacturing Defect

There is a manufacturing defect when the product does not meet the intended specification set by the manufacturer (Kim, 2018). As for this type of defect, no significant litigation is expected. The manufacturer has very few available defenses once a plaintiff proves that an SDV did not meet specifications (Anderson et. al., 2014). Under the doctrine of *res ipsa loquitur*, the facts or circumstances accompanying an injury may be such as to raise a presumption, or at least permit an inference of negligence on the part of the defendant (Yellow Bus Line Inc. v. Gepaya-Lim, G.R. No. 218014 [2016], as cited in Malayan Insurance Company, Inc. v. Alberto, 680 Phil. 813, 824-825 [2012]).

Design Defect

A design defect is one that is inherent in the makeup of the product and is usually the consequence of poor design (Anderson et. al., 2014). The defect is determined by comparing the product's design with the standards established by law (Aquino, 2005). However, in case there are no official standards—such as in the case of SVDs in Philippine jurisdiction— the determination of design defect can be done by using two tests: the consumer expectation test and the risk-utility test.

Under the consumer expectation test, a product is defective if the product fails to perform as safely as an ordinary consumer would expect when used in an intended and reasonable manner (Barker v. Lull Engineering Co., 573 O. 2d 443 [Cal. 1978], as cited in Aquino, 2005). On the other hand, product design is defective under the risk-utility test if the plaintiff's injuries would have been eliminated or reduced by the use of an alternative design, and by ensuring the product is not a safety hazard (General Motor Corporation v. Edwards, 482 So. 2d 1176 [Ala., 1985], as cited in Aquino, 2005).

For SDVs in the Philippines, the risk-utility test is more suitable for the following reasons: (1) the test employs a more objective assessment on the damage which results to a fairer determination of liability (Definition of Products liability, Legal Information Institute, n.d); (2) it encourages manufacturers to introduce SDVs to the market to prove product's utility outweighs its inherent risk of harm, also actualizing its other benefits (Kim, 2018); and (3) the automated vehicle industry may not be mature enough to absorb all unforeseeable risks.

Ideally, SDVs could perfectly and flawlessly execute a "sense-plan-act" cycle as permitted by technology. While SDVs are considered reliable, their reliability still depends on the sophistication of the driving environment programmed into them (i.e. other road users or on-road obstacles, weather conditions, infrastructure conditions, and traffic events). Unfortunately, the unpredictability of the driving environment cannot be truer in the Philippines. It may be highly impractical and unfair to subject SDV manufacturers to the consumer-expectation test, unless and until the traffic and road conditions in the Philippines improve.

A reading of DTI's (1992) implementing rules and regulations (IRR) suggests the view that the risk-utility test is applicable in the Philippines because it takes into consideration "[t]he levels of research and technology obtainable by the manufacturer, builder, producer or importer when it placed the product into the market." However, upon closer scrutiny, this consideration in the IRR is absent in the law itself. The IRR's undue inclusion of the risk-utility test is, therefore, *ultra vires* as it unduly encroaches upon Congress' legislative prerogative. There is, therefore, a need for Congress to legislate the risk-utility test as official, otherwise, the application of the risk-utility test could be easily challenged in court.

Warning Defect

A warning defect results from the manufacturer's failure to provide the consumer with appropriate warnings on the dangers of the product (Anderson et. al., 2014).

In the David Brown incident (Thompson, 2017), the NHSTA ruled out Tesla's liability because the owner's manual sufficiently warned drivers of Traffic-Aware Cruise Control (TACC) and the autosteer system's limitations. However, NHSTA also made the following observation that while drivers are— in a general sense—burdened with the duty to read the manual, manufacturers have the corresponding duty to design a manual with "inattentive drivers in mind" (Quandt, n.d.).

Article 77 of the Consumer Act and Section 1, Rule VI states that "any… information [on directions for use] shall appear…with such conspicuousness…and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase or use."

An "ordinary individual" or "ordinary driver" is not necessarily synonymous with "an inattentive driver." The act of driving requires attentiveness, prudence, and motor skills. From this perspective, one could validly argue that an inattentive driver is someone whose attention is lower than that of an ordinary driver. Moreover, due to the SDV's novelty in the market, local drivers may have unrealistic high expectations of the technology and confuse themselves as passengers. This heightened expectation could lead to an "ultrahazardous activity" endangering both to its occupants and third persons (Anderson et. al., 2014).

The traditional owner's manual may no longer be the optimum means of communicating the dangers SDVs pose. Taking a cue from the NHSTA's observation, it would be best for Congress to mandate SDV manufacturers to design warnings which are not only clear, but are designed to be appealing, compulsory, and readily-accessible — even to the point of recurring — for the inattentive driver. These warnings may be in the form of audio-visuals demonstrating the SDV's capabilities and system updates. Government authorities may also

require drivers to attend seminars on proper SDV use as pre-requisite to vehicle registration or renewal of driver's license.

Impact on Society and Global Business Industries

Driverless mobility not only provides a safe mode of transportation but also supports economic viability. The automotive industry thrives and has been proclaimed as one of the most revolutionary markets of the next decade. The overall economic impact of SDVs is estimated at over $1.2 trillion (Clements & Kockelman, 2017). As fewer road accidents occur (Ramsey, 2015), related expenses on accident prevention and management will also be reduced. Similarly, mitigation of traffic through SDVs eases the need for investments for wider roads and other road infrastructure (Autonomous Cars: A Big Opportunity for European Industry, 2017). There will be a decrease in unproductive travel as less time will be spent in traffic. An estimate of $144 billion may be saved from the reduction of road collisions, as well as unproductive time spent on the road (Clements & Kockelman, 2017). It is foresighted that SDVs will reduce fuel consumption and emissions. Additionally, saved parking spaces may pave the way for better urban planning (Kloostra, 2017). The automotive industry will generate job opportunities to further advance technology and carry out related services. While there may be a reduction in the demand for professional drivers, there will be an increase in the demand for high paying jobs such as engineers and researchers, as well as low skilled workers such as vehicle services, fleet management, and interior hygiene for vehicles used for ridesharing services (On the Road to Automated Mobility: An EU Strategy for Mobility of the Future, 2018).

Although it generates many advantages, SDVs will have a negative impact on some sectors. In the insurance sector, warranty claims may be affected due to enhanced car performance (Autonomous Cars: A Big Opportunity for European Industry, 2017). Ensuring the security of data gathered by the SDV is another concern. Gas stations may be rendered obsolete as the majority of SDVs are electric-powered. Ultimately, the influence and advancement of autonomous vehicles may only be limited to the extent of competition among companies in the IT industry. Manufacturers of driverless vehicles may also face issues on business ethics. This ethical dilemma becomes evident during road accidents, specifically, when the vehicle encounters a *"trolley problem"* forcing it to make moral judgments. For instance, the artificial intelligence installed in the vehicle may dictate whether to save its driver at the expense of the life of a pedestrian, and vice versa. Impelled by the instinct of self-preservation, human beings may be excused in prioritizing their own safety over that of others. However, car manufacturers and software designers cannot simply program a vehicle to function similarly (Lester, 2019).

Because SDVs have yet to dominate the market, the abovementioned impacts remain uncertain. What is clear is that the long-term benefits can only be achieved if legal regulations keep pace with, rather than stifle, innovation.

Conclusions

In sum, the introduction of self-driving vehicles in the Philippine market necessitates governmental action. To legally usher in SDVs, the government must support initiatives to amend the Vienna Convention on Road Traffic, and concurrently, amend our antiquated domestic traffic laws.

In the same wise, while the Consumer Act fundamentally addresses concerns and issues brought about by the SDVs, it would be wise for the Philippine government to amend certain portions of the law to: (1) officially recognize the J3016 taxonomy; (2) define the relationship of software designer and SDV manufacturers and to make their liability solidary, instead of joint; (3) make the risk-utility test the official yardstick to determine product liability on SDVs; *and* (4) mandate SDV manufacturers to design warnings which are not only clear, but are designed to be appealing, compulsory, and readily-accessible— even to the point of recurring — for the inattentive driver.

As with other laws addressing new technology, Congress must not only anticipate the problems SDVs may bring but must also temper the negative impact of overregulation which could stifle the product's introduction into the market.

Limitations and Recommendations for future research

Mainstream production of SDVs may come sooner than initially expected given the attention it has been gaining from various sectors of society. Having said this, laws must be readily available and future researchers may look into the protection of data collected through SDVs. Cybersecurity measures are vital in SDVs as the vehicle employs a technology that allows it to connect with, and collect data from, other vehicles. Other areas future researchers may take interest in are the legal challenges of insuring SDVs and the legal ramifications of employing SDVs as means of public transportation.

This research exposes the policy gaps in-laws. Future researchers may opt to present a more detailed empirical discussion on the impact of the policies suggested.

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