

**Development of Self-Driving Vehicles in a Logistics Environment**

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### **Introduction to Literature Review**

The advancements in technology, and self-driving vehicles, raise ethical and trust concerns for markets towards corporations and other areas of infrastructure (Viktor and Szeghegyi, 2022). Examining the ethical concerns of introducing self-driving vehicles will provide the necessary solutions to convince society to accept this new technology. The literature review that follows herein has considered only articles relevant to the topic of concern: self-driving or autonomous vehicles. This research was keen on various factors like the opinions of individuals in the logistics sector, the resources needed for self-driving technology, the benefits and limitations of self-driving autonomous vehicles, and the factors determining the choice of information technology systems (IT). The literature review process was possible through two databases of the Monroe College Library, including EBSCO Host and ProQuest. For this review, the key terms and notations that helped select relevant articles were self-driving vehicles, autonomous vehicles, and autonomous driving.

### **Review of Literature**

#### **Implications of Self-Driving Vehicles**

Viktor and Szeghegyi (2022) conducted research 2022 intending to examine the current developments in self-driving vehicles. The researchers organized the study in Hungary to determine the safety concerns following introduction of self-driving vehicles, more so in a logistics environment. The authors used a systematic review of literature methodology to explore the recent developments and state of these new autonomous vehicles. The literature was also meant to reveal how society is ethically oriented toward new technology. A society's attitude truly reflects the level of trust and decisions they have on these self-driving vehicles on public

roads. The study revealed that choosing appropriate self-management systems for autonomous vehicles depends on price. The study showed that the type of IT system put in place has a medium relationship with the purchase cost. Manufacturers' selection of an IT system depends on the price of acquiring the system. Apart from revealing the price factor, Viktor and Szeghegyi (2022) introduced 21 other parameters that affect the selection of IT systems. The article offered manufacturers a description of the current trends in the market so that they could make better choices depending on the side of the expert and the consumers. The study proposes further research to determine whether these new self-driving vehicles will be able to replace man completely when it comes to travel and logistics.

### **Pessimist View of Self Driving Vehicles**

Nees (2019) conducted a study in the United States 2019 about the popularity of the safety of self-driving vehicles and whether they were safer than human drivers. The researcher embarked on this study to investigate how drivers view the safety of self-driving cars and how they rate them on a scale. Nees (2019) recruited 504 participants living in the US using Amazon Mechanical Turk (AMT), but only 472 qualified to participate in the study. Apart from being residents in the US, the other selection qualifications were licensed drivers who had a greater than 95% approval rating and more significant than 1000 tasks already approved in previous time. The study revealed that, indeed, most drivers have the intuition that they can drive safer than the average, typical driver. This finding affirms the perception of most drivers that they are better than average. Besides being better than the next typical driver, drivers also believed they could perform better on the road than current vehicles with automatic driving capabilities. The acceptability of self-driving vehicles by human beings is unlikely because the latter wants standards that are better than the average driver. Human drivers will only allow self-driving

vehicles that surpass the qualities of the average driver and equal the best human drivers.

Another article gave a similar perception of how self-driving technology will not be relevant in the current world. Neuweiler and Riedel (2022) studied how people think the world will adhere to autonomous driving technology shortly. The study aimed to investigate the perception of self-driven vehicles found in the logistics environment. The authors used qualitative semi-structured interviews to collect data in Sweden and Germany. The study was undertaken in an inductive research approach to explore the topic of self-driven vehicles, using 17 participants. The seventeen participants were separated into five different case groups. The groups were used to derive themes from interpreting the data from the study. The themes revealed that people think the near future will not be a time for fully autonomous driving. While human resources will continue to lose significance for feasible solutions, other physical and knowledge aspects will gain more demand. The quality of the driver may lose significance to factors like fleet size and the ability to offer unique services. Companies in the transport sector and those that develop trucks clearly understand the concept of autonomous driving and the whole implementation process. The level of autonomous driving is expected to reduce shortly. Additionally, the researchers revealed that level five fully automated trucks are not likely to enter the market soon.

### **Acknowledging Self-Driving Vehicles**

Another research took a different perspective regarding the topic of self-driving vehicles. Othman (2022) wanted to explore the implications of autonomous vehicles on society in general. The study aimed to explore the significance of autonomous vehicles regarding safety, public behavior, land use, economy, society and environment, public health, and situations involving pandemics. The researchers conducted a systematic literature review in the US by collecting data

in 2021. This cutting-edge study of the literature examines the effects of autonomous cars. Scopus, Web of Science, ScienceDirect, SPRINGER LINK, IEEE Xplore, and TRID were the databases and search engines utilized. According to the study, individuals in rich countries are more optimistic about self-driving cars than people in underdeveloped countries. In terms of public health, vehicles have both advantages and disadvantages. When dealing with pandemics, they can be helpful. Based on data from different nations regarding accident statistics, education, and income, individuals from developed countries are more pessimistic than those from developing countries about deploying autonomous vehicles (AV). While some dangers, like pollution and sedentarism, may be increased by AVs, they may also assist in redesigning cities to encourage healthy settings by decreasing morbidity and mortality from car crashes. AVs have demonstrated their effectiveness in solving some of the most challenging problems pandemics present to society. Because AVs may offer individuals efficient and safe mobility to assist them in their necessary tasks, the preceding use cases demonstrate that they constitute a crucial instrument in the battle against pandemics.

### **Analysis of Literature**

The introduction of self-driving or autonomous vehicles to the logistics environment is an issue that raises concern for many stakeholder organizations and individual drivers as well. Researchers on this topic included Viktor and Szeghegyi (2022), Nees (2019), Othman (2022), and Neuweiler and Riedel (2022). This research was keen on various factors like the opinions of individuals in the logistics sector, the resources needed for self-driving technology, the benefits and limitations of self-driving autonomous vehicles, and the factors determining the choice of information technology systems (IT). Two studies, Viktor and Szeghegyi (2022) and Othman (2022) involved a systematic literature review. Whereas Nees (2019) relied on an online survey

to interview participants, Neuweiler and Riedel (2022) used qualitative semi-structured interviews with seventeen participants. The study by Nees (2019) showed that self-driving cars are unlikely to be accepted by people since they demand higher standards than the typical driver. Only autonomous cars that outperform average drivers and match the most significant human drivers will be accepted by human drivers. Neuweiler and Riedel (2022) continue to affirm that businesses in the transport industry and those who design trucks thoroughly understand the idea of autonomous driving and the entire deployment process. According to the experts, fully autonomous level-five trucks are not expected to hit the market anytime soon. As a result, it is anticipated that autonomous driving will decline shortly. However, a different view came from the study by Othman (2022), who asserts that AVs have successfully addressed some of the most challenging issues pandemics bring to society. The use mentioned above examples shows that AVs are a crucial tool in the fight against pandemics since they may provide people with effective and safe mobility to help them go to their essential duties. To implement AVs, Viktor, and Szeghegyi (2022) show that cost had the most significant role in determining the most effective self-management systems for autonomous cars. The study found a moderate association between the kind of IT system installed and the transaction cost.

### References

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