

LEE LI MING
PROGRAMME IN
AGEING URBANISM

Moving towards self-driving vehicles

Ageing and Mobility¹

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Many older people prefer to travel by personal automobile, either as a driver or a passenger. Yet, their self-confidence to drive is often low and their capacity to drive safely is the subject of public debate.

The advent of the self-driving or automated car, such as those being developed at Ford, Tesla, Toyota, Nissan and BMW, may prove a boon for older people who prefer to drive or to travel in a private automobile. They may also prove popular among time-poor family caregivers who routinely convey their older family members to medical and other appointments.

¹ This is an evolving database. We will be adding more examples and cases over time.

Older people as early adopters of self-driving technology

According to a survey conducted by American Automobile Association (AAA), only one in five Americans have trust for autonomous vehicles, and three out of four drivers report feeling afraid to ride in a self-driving car. Nevertheless, demand for semi-autonomous vehicles is high. Among drivers who desire to have semi-autonomous features on their next vehicle, AAA found they desired these features to ensure driving safety (84 percent), provide convenience (64 percent), and reduce driving stress (46 percent). Older people were more likely to cite safety as a reason to choose a semi-autonomous vehicle (89 percent) than younger adults (78 percent).

AAA reported that drivers who own vehicles equipped with semi-autonomous features are, on average, 75 percent more likely to trust the technology than those that do not own it. This suggests that exposure and experience with semi-autonomous features may allay consumer uncertainties. Evidence indicates that older drivers have been eager in their acceptance and adoption of semi-autonomous cars, including advanced safety features like adaptive cruise control, forward emergency braking, lane-keep assist, blind-spot monitoring and intervention, and rear-park assist. Nevertheless, commentators have expressed concerns about older people's

capacity to safely drive semi-autonomous cars and whether their access to them should be restricted. Jody Holtzman, senior vice president of market innovation at American Association for Retired Persons (AARP) said: "one of my most interesting conversations at Waymo, the Google spinoff, they said their research showed that the more of these additional automated features you have, the worse the person's driving gets. They started thinking about the implications of that. This led them to say that the answer is complete autonomy. No steering wheel, no pedals, no anything."

It is expected that fully automated; self-driving cars will be available on the market soon. Some experts predict that older people rather than younger people will be early adopters of self-driving technology. For example, Joseph Coughlin, the director of the Massachusetts Institute of Technology's AgeLab, stated: "For the first time in history, older people are going to be the lifestyle leaders of a new technology. Younger people may have had smartphones in their hands first, but it's the 50-plus consumers who will be first with smart cars."

Japan - test bed for autonomous driving

Researchers at Kanazawa University, Japan, are testing self-driving technology to improve

the mobility of older adults in the town of Suzu. Suzu has a declining and population with a high proportion of older residents. More than 50 percent of Suzu's population is aged over 65 years. Due to an inefficient public transportation system, many older people in Suzu continue to drive beyond the time when many older people would choose to cease driving. To address this issue, researchers at the university have introduced self-driving vans to provide door-to-door transport service for Suzu's older citizens. The university aims to have these vans running in 15 to 20 years.

USA – pioneers in autonomous vehicles

Former US President Barrack Obama once stated: "Right now, for too many senior citizens and Americans with disabilities, driving isn't an option. Automated vehicles could change their lives".

The US government is preparing for the advent of automated vehicles on public roads by formulating new rules and guidelines for automakers to ensure the safety of self-driving cars.

The Department of Transportation (DOT) intends to open ten autonomous testing centres across the US. The centres will be shared by various automakers to facilitate data

and technology sharing and with the intention of achieving safe automated cars that consumers trust.

Educating older drivers on how to operate these vehicles is important. AARP in partnership with The Hartford Auto Insurance is developing a driver safety programme for older adults to acquaint them with autonomous vehicles.

The US is exploring the concept of a shared autonomous shuttle to provide door-to-door transport and facilitates older people to perform tasks such as going to the grocery store, visiting the doctor, or visiting family and friends.

In 2016, Varden Labs, an autonomous vehicle startup founded by two students from the University of Waterloo, designed an electric shuttle bus which resembles a golf cart. The shuttle has a speed of 15 mph and it caters to places such as university and hospital campuses where low-speed, high-capacity vehicles can move a lot of people.

Measuring the safety of driverless vehicles

The social question pertaining to driverless vehicles is how safe is safe. There are questions concerning liability and degree of willingness to allow users to operate these

vehicles. AARP magazine highlighted the views of Bryant Walker Smith, a former transport engineer who now teaches law at the University of South Carolina. Mr. Smith suggests that there are legal issues surrounding the self-driving transition. As technology improves, graduated licenses which permit people to drive who would otherwise be considered unable to drive because of poor vision or other impairments, may address legal concerns. The graduated licenses would allow drivers to operate automated vehicles under restricted conditions, such as within retirement communities or on special self-driving-only lanes.

The US DOT is exploring the possibility of having autonomous vehicles on roads without a human driver at the wheel. However, the California Department of Motor Vehicles has proposed a regulation that requires a human driver to be present in a driverless car. Jennifer FitzPatrick, a gerontologist and professor of John Hopkins University, raised a concern about the degree of autonomy in cars. Whilst driverless cars may allow older adults to go on longer trips further from home. However, complete autonomy might pose as a safety challenge when there is a need to take control of the car but passengers are unable to do so due to some mobility limiting factor.

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