

Etcetera

This section contains items whose aim is to supplement the articles and other work published in this volume of *Sociology between the Gaps*. We hope you enjoy reading them.

Implications of the Transportation Revolution

This commentary is an addendum to the article entitled “The Advent of Autonomous Vehicles: A Transportation Revolution” which I published in this volume. In that article I wrote about the coming autonomous vehicles. Here I want to comment further on the possible implications of these vehicles. In my previous article, I mentioned that, with the increasing cost of autonomous vehicles, fewer vehicles will be on the road. One implication is that more people will take ride-sharing vehicles (i.e., taxis, limousines, Lyft, Uber, for example) or enter into car-sharing ownership with others. With fewer vehicles, fewer parking spaces would be needed. Fewer parking spaces could translate into more useable real estate. There will be other changes in societies as result of the transportation revolution. Below I explore seven categories of possible changes related to innovations in transportation.

Changes in the housing industry: With autonomous vehicles, anyone-- even older seniors and those either handicapped or disabled, can “drive” these remarkable innovations. Seniors can live in their own homes independently much longer than at present. There would, therefore, be less demand on independent living arrangements or even assisted living, if seniors can get medical services at home. This, in turn, would contribute to the development of *livable, inter-dependent communities*, e.g., seniors living together (along with younger people or even relatives) in a housing complex which provides medical and other support services. These livable communities would help seniors with social, economic, and housing issues. The proliferation of livable communities would, in turn, minimize the number and size of the independent/assisted living facilities throughout the country and reduce the cost to Medicare and Medicaid.

Another proposal to change the housing industry is the existence of autonomous houses. According to Doug Davis, senior VP of Intel’s Automated Driving Group, people could see “an evolution of RV’s into autonomous houses and nomadic communities that follow work patterns.”¹ This brave new world of the future would become a truly mobile one. With the need of labor being sent to do specific jobs in other parts of a country, the demographics of nations would shift dramatically. For example, if the Las Vegas area needs more laborers or employees for business, then these mobile communities would be summoned to fulfill the labor need.

Changes in city/large town planning: In a sort of return to the past in the future, large metropolises could become decentralized into smaller manageable, self-sustaining entities with all the necessary services to be self-sufficient. For example, these smaller entities would have local pharmacies, doctor and lawyer offices, butchers, shoemakers, tailors, corner grocery stores, crafts people and other specialty trades.

Small forgotten and abandoned towns throughout the country could be repurposed into self-sustaining communities. Larger cities, like New York City, for example, would be broken into five boroughs, each operating independently. Residents would use either mass transportation or autonomous vehicles for distance travel to surrounding communities. I wrote about this model in *SBG2* in the article entitled, “Reinforcing The Values of The Village In Urban Settings.”

Changes in occupations: Gone will be truck drivers, since the trucking industry will be managed by driverless vehicles. These vehicles, in turn, would be dispatched by computers not humans. The trucking industry will have to re-invent itself into a kind of an Amazon

¹What’s the Autonomy Economy? 2017. *Car and Driver* (November: 088).

organization. Fleets of trucks can be used for cross-country commerce and would be segregated from non-commercial autonomous vehicles. These robo-trucks would operate day or night. Some federal regulation must be made for hours of operation and could operate on alternative fuels, such as natural gas.

Occupations yet to be determined will emerge, mostly in the IT field. Occupations displaced by autonomous vehicles or by computers may become a new class of "unemployables." This category could be short-term or long-term depending on the opportunities to learn new skills such as starting a small business or becoming part of a cooperative. In either case, people "in transition" to a new occupation or career should likely be paid more than people on welfare.

Changes in secondary and post-secondary education: Vocational high schools will become more useful for the general population in training students for computer technology and repair and for various trades. With the innovation of autonomous vehicles, auto mechanics will be a highly specialized and skilled field. Autonomous vehicles will become computers on wheels. In the future, autonomous vehicles may be able to self-diagnose glitches and problems, such as viruses. Gone will be the corner Mom and Pop garage. Thus, human technicians may even become obsolete. Because of the higher level skill sets required, children may start a form of regular public schooling sooner than they do at present-- at age three rather than at age five. Instructors at all educational levels would need to be re-trained to fit the needs of the advanced technologies. Also, studying the liberal arts in colleges would be a luxury reserved for the wealthy like the finishing schools of the past and for those older adults who have the desire to learn these enrichment subjects and have leisure time at their disposal. Colleges and universities would shift to specialized fields, such as pre-law, pre-med, and business and finance.

Changes in alternative energy sources: Vehicles of the future will be running on natural gas, non-petroleum, electric, even solar or fuel-cell. The environment would become cleaner. Dependency on fossil fuels will be a thing of the past, because fossil fuels will not be used for the operation of autonomous vehicles and more for maintenance of these vehicles. There is also the possibility of a low-grade, nuclear-fueled vehicle, such as the vehicle in the movies, "Back to the Future,

Part II and III." Flying locomotives, however, such as in the movie, "Back to the Future, Part III," can be a bit of stretch of our imagination. Flying cars, fueled on fuel-cells or other alternative energies, will be here in 2020, but changes in FAA regulations will likely lag behind for many years. I also think new occupations may emerge in time from the development of these alternative energies.

Changes in vehicle size: Vehicles would become smaller and more compact. Autos without drivers could carry two to six people; buses would be smaller, similar to mini vans; and trucks can be either very large (similar to the present day "trains" of Australia, which criss-cross the continent through the Outback) or small "robotrucks." These driverless vehicle "would re-program the time/cost optimization of travel" and thus, would eliminate regional air travel. A businessman could use an autonomous vehicle instead of air shuttles to go to a distant city and spend productive time working in these vehicles while traveling or catching up on sleep or just socializing with fellow passengers.²

Businesses would have their own autonomous fleet vehicles to deliver their goods, thus eliminating some delivery companies, such as FedEx. Companies, like United States Postal Service, may have to change their focus to accommodate their delivery of goods and services. Competition from drone-based companies may also be a big concern.

Changes in the legal profession and in policing: Autonomous vehicles are controlled by computers, sensors, and radar. Thus, vehicles will not go over speed limits, drive recklessly, make judgment errors, text or interfere with regulations of the road. The legal field may shift in focus to liability issues. What happens if there is an accident due to glitches or problems with the computers within these vehicles? The manufacturers of these autonomous vehicles must insure themselves against claims. There would also be a shift in policing on the road. Police, both local and state, would concentrate on crimes and not to police roadway violations, such as distracted driving, regulation violations, and road rage. No more state or local police hiding behind signs or bridges.

²How Would Level 5 Cars Change Our Lives? 2017. *Car and Driver* (November: 085).

In conclusion, the transportation revolution will have a far-reaching effect on our world in the very near future. From the housing industry to the educational field; from the trucking industry to the business world, our way of life will be changed dramatically. We must adapt to the challenges of these changes with changes in the sphere of non-material culture. New regulations and laws will need to be created to accommodate our ever changing world.

References

“How Would Level 5 Cars Change Our Lives?” 2017. *Car and Driver* (November): 085.

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This piece was written by Helmut E. Reinhardt, a volunteer instructor for AARP’s Safe Driver courses.

Driving into the Future

Many companies are getting on the bandwagon of mass producing autonomous vehicles. As recently as December 2017, a number of big and small manufacturing companies have started to unveil plans to produce autonomous vehicles with, and without, steering wheels and pedals.

By 2019, Ford Motor Company, one of the oldest car manufacturers in America, will unveil plans for an autonomous vehicle, which “talks” to everything—e.g., street lights, smart phones (in the pockets of pedestrians and bicyclists), other non-autonomous and semi-autonomous vehicles. When this happens, transportation will start to take a leap into the future.

Ford is actively pursuing several other initiatives partnering with Qualcomm to install a V2X cellular technology into its vehicles; with Domino’s and Lyft; and with a delivery startup company called Postmates. The objective of the Ford Motor Company is to make money off of the idea of driver-less vehicles. In addition, by 2021, Ford plans to manufacture a vehicle without

either a steering wheel or gas and brake pedals (Hawkins 2018a).

General Motors, once the largest automobile company in the world, also plans to introduce an autonomous vehicle without a steering wheel or pedals. Using fourth-generation electric Chevrolet Bolts, the primary use of this vehicle will be for ride-sharing and a taxi service. Currently, third-generation Bolts are being used on a trial basis on streets of San Francisco and Phoenix. The trial basis has been deemed fairly successful, with only six crashes in September 2017 (both fault and no fault by these vehicles). GM was able to roll out this innovation because of their acquisition of Cruise Automation and LIDAR start-up Strobe. With innovations coming rapidly to various car shows (traditional roll-out of forthcoming models), the federal government finds itself in a state of cultural lag because many of these new vehicles *do not* meet federal safety standards. For example, because of the lack of steering controls, a passenger airbag must be substituted for the driver airbag on these new GM ride-sharing vehicles. GM needs to seek exemptions from the Federal Motor Vehicle Safety Standards in order to be able to even road-test these new vehicles (Hawkins 2018b).

Waymo, self-driving unit of Google Alphabet, will also launch their first commercial driver-less, ride-sharing service in Phoenix, AZ, but with a steering wheel and pedals (for emergency or backup use). According to Hawkins (2018c), Waymo is also test-driving these minivans in San Francisco and Atlanta. Waymo has announced that they have already tested these vans in 24 cities throughout the country, including Austin, TX, Detroit, MI, and Kirkland, WA.

In Las Vegas, a Mercedes Smart Vision EQ is making its appearance. This vehicle has a different approach. Achieving a top speed of 12 mph, the Mercedes Smart Vision EQ has room for just passengers. It is piloted remotely by a nearby human. Since there is no center console and steering controls, the vehicle’s interior is roomy. The dashboard has navigation and a few social media posts to entertain passengers. The vehicle has a “kill-switch” in case something goes wrong (O’Kane 2018).

The Consumer Electronics Show (CES) in Las Vegas has showcased a Toyota with an E-Palette concept which makes it essentially a box on wheels. These vehicles can

be transformed to suit the needs of the company that buys them. Amazon or FedEx may turn it into a delivery vehicle. A flower shop may use the vehicle to transport flowers. This “concept vehicle” is next-generation battery-electric and is fully autonomous (Nichol 2018).

Voyage, a startup company, is introducing self-driving taxis to the Villages retirement community in Orlando, FL (Hawkins 2018d). These taxis will have traditional controls. Voyage has operated the same self-driving vehicles in the San Jose, CA Villages community and is offering senior citizens in San Jose and Orlando an equity stake in the Voyage company as a bonus for participating in the experiment. Determining the effectiveness of this incentive with senior citizens will require further research.

Lastly, self-driving taxis, operated by Lyft and Aptiv, will extend their trial period in Las Vegas. Lyft is working on a program for Boston. As demonstrated in the 2018 Consumer Electronic Show (CES), these taxis provided the show attendees tickets for free rides of up to 400 miles of transportation to 20 pre-programmed destinations throughout the Las Vegas area. The rating of 4.5+ (out of 5) from attendees who took the free rides is very positive feedback. In my opinion, the CES illustrated the rapid pace of innovations in the autonomous vehicle realm. Government regulations have not kept pace. If regulations do not catch up with the pace of change, there is the risk that this lag will hinder more technological changes now and in the future.

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