Will Autonomous vehicles change the way we work and live?

Other title options:

Autonomous vehicles – impact on economy
Six ways autonomous vehicles can drive economic change
Autonomous vehicles – positive change drivers or an economic car crash?

You can now hitch a free ride in a driverless vehicle on the streets of San Francisco. Waymo, Google's self-driving car company has begun product testing in real road conditions – a breakthrough for autonomous vehicle technology. These vehicles could unleash new development, not seen since the dawn of the Internet. The impact on how we live and work could be as transformative as when Henry Ford had the first assembly line in the last century.

The total global investment in autonomous vehicle(AV) technology exceeds $100 billion already, and that figure is set to increase rapidly as competition intensifies. At the same time, countries throughout the world are investing in infrastructure to facilitate AV production and adoption. It will not be long before commercial fleets make the shift. Any impact on the logistics Industry would create a domino effect that changes Retail, Commerce and eventually every aspect of our lives.

Let us explore a scenario where autonomous vehicles are as ubiquitous as the mobile phone and look at six key areas of impact.

The auto industry – shift from private to public?

Self-driving cars would have the same impact on the auto industry that the smartphone had on telecommunication – massive and unpredictable. Current AV research is primarily focussing on Mobility-as-a-Service (MaaS) offerings. These are driverless fleets, similar to Uber, that one could hail at the press of a button. They would be much more cost-effective as no driver wages need to be paid. Experts predict that the prevalence of such options could result in the decline of private car ownership, creating a ripple effect on everything from fuel prices to insurance and even state revenue structures.

Traffic systems– increased or decreased efficiency?

Experts are conflicted on the impact AV technology could have on road infrastructure. Optimists predict an overhauled and more efficient road system, with commute times declining rapidly. Intersections and mergers would no longer produce an accordion effect resulting in much smoother traffic flow. Less congestion would mean fewer emissions and safer driving conditions – since the human error factor has been eliminated.

Pragmatists, on the other hand, predict an increase in congestion due to more cars being allowed on roads. Moreover, we have to factor in the transition time – it could be decades before every

manual car has been taken off the roads. As long as human-driven cars and self-driving cars co-exist, human error cannot be fully eliminated.

Road infrastructure – more space for urban planning?

Driverless cars could potentially reduce the need for parking space, especially in congested inner-city areas. One could envision public AV fleets constantly on the move, or even private AV cars being "sent back home" after dropping their owners to work for the day. Perhaps city planners would turn parking dead zones into parks and playgrounds, creating greener cities. Road construction and design would also change as AV cars are expected to communicate with each other electronically. One can expect new charging stations, mobile towers and road sensors that enable this communication.

Logistics industry – new services and business models?

Supply chain operations could see a broad range of potential effects impacting everything from jobs to safety to pricing. Logistic companies, already suffering labor shortage, could adopt AV technology faster than we think. Still, it is hard to imagine a long-haul eighteen-wheeler speeding down our highways without a driver. A more realistic assumption would be a driver switching between auto and manual modes on long drives. The industry could also expand into a variety of new commercial services such as onboard retailing and dining.

Human health – equitable access to mobility?

Driverless cars are going to make mobility more accessible for those currently unable to drive. It would allow senior citizens, people with disabilities and potentially even children, greater access to independent commuting. Also, safer road travel, in general, would reduce the chances of injury due to accidents. Only a 1% reduction in road safety incidents would – in the US alone – result in a cost reduction of [more than $8 billion annually](#), which implies significant value to be gained from AVs for the GDP.

It is important, however, to factor in the presence of criminal elements in society. Criminals could have the potential power to hack into AV vehicles and cause massive damage to life and property. All of these different scenarios would create ripple effects on health and accident insurance. Who is responsible for insurance payment? Who is protected by that payment? These questions would need to be rethought and new policies implemented before we can introduce AV on any significant scale.

The job market – growth of new roles and skills?

As is typical of any new technology, AV would make specific jobs redundant while creating new job opportunities and the need to upskill. The driver job role could transform into an AV specialist, someone who manages AV control while also providing customer service in MaaS offerings. New roles like AV technicians, Remote AV controllers and AV service managers would emerge, creating new qualifications. The necessary training infrastructure would boost the education sector.

Improved productivity or just more Netflix?

Experts foresee a significant impact due to the additional free time everyone would get on their commute. A recent study stated that automated vehicles could free up as much as 50 minutes each day per passenger in the US that had previously been dedicated to driving ([NHTS20]). Experts predict economic growth on the assumption that people will use this time for greater economic productivity. But what if people used this time to just watch more Netflix?

Ultimately, the success of Automated Vehicle Technology depends on the strategies and policies implemented around its adoption. Factors like people's trust in the system, its reliability and security will impact the speed and direction of adoption. Collaboration between different disciplines and stakeholders is key to managing optimal transitioning.