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Washington Area New Automobile Dealers Association



Ride sharing & autonomous are not the same

- Considerable confusion between what autonomous driving, or self-driving is and what ride sharing is
- Ride sharing is only one, limited, application possible for autonomous vehicles
- A great deal of confusion over ride sharing and how it will impact personal use vehicles has been created
- There have been growing discussions that ride sharing will eliminate personal use vehicles
- This is a misunderstanding of basic economics

Cost effectiveness of ride sharing

- Individual
 - Home to office \$7.00
 - Office to home \$7.00
 - Home to gym \$5.00
 - Gym to errand \$5.00
 - Errand to home \$5.00

 - Total per day \$29.00
 - Cost per month (excludes weekends) \$580.00

Cost effectiveness of ride sharing

- Family of 4 (2 parents, 2 children)
 - Home to office \$14.00
 - Office to home \$14.00
 - Home to gym (1) \$5.00
 - Kids to practice/rehearsal, etc. \$14.00
 - Gym to errand \$5.00
 - Errand to home \$5.00
 - Kids from practice to home \$14.00
- Total cost per day \$71.00
- Cost per month (excludes weekends) \$1,420.00

Pros and cons of ride sharing

Pros

- Costs may decline for individual rides
- No downtime for personal vehicle maintenance and repair
- Eliminates maintenance and parking costs
- Convenience (but wait time a factor)

Cons

- Wait time (especially in non-urban areas)
- Availability/cost in bad weather & peak times
- Dependence on system over which user has little control
- High cost for travel involving significant distances
- Services currently unprofitable

Cost effectiveness of ride sharing

- August 2018 study by AAA analyzed ride sharing in 20 major cities*
- Urban areas best and most effective places for ride sharing
- Found yearly cost for using ride sharing is more than DOUBLE that of personal vehicle ownership
- Cost for ride sharing averaged \$20,118
- Cost for personal vehicle ownership averaged \$7,321
- Figures based on annual mileage of just 10,841 miles per year usage

- AAA Ride Hailing Costs study August 21, 2018 <https://newsroom.aaa.com/2018/08/ride-hailing-double-cost-car-ownership/>

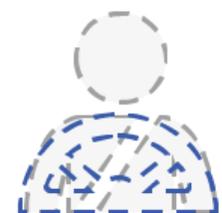
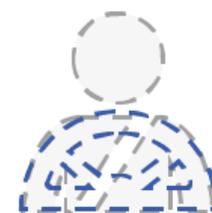
Autonomous driving

- Since ride sharing will not displace personal vehicles or their use, it is important to look at the topic knowing that both fleet and personal use will be areas where autonomous driving will be applied
- Thus, accidents such as we've seen with various vehicles which have some level of autonomous operation can be expected to continue
- Both the automotive industry and regulators have come to accept the Society of Automotive Engineers classification of five levels of autonomous operation

SAE ranks The 5 levels of autonomous driving

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation



0

No Automation

Zero autonomy; the driver performs all driving tasks.

1

Driver Assistance

Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.

2

Partial Automation

Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.

3

Conditional Automation

Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.

4

High Automation

The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.

5

Full Automation

The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

The Washington D.C. Auto Show's MobilityTalks International[©]

- Leading conference for international regulators of autonomous vehicles
- Held in conjunction with The Washington D.C. Auto Show
- MobilityTalks takes place next year from April 2 to April 4, 2019
- Attendance expected by regulators from China, England, Germany, Japan, South Korea and the United States as well as at least X more countries
- Meetings will take place on Capitol Hill and at the Walter E. Washington Convention Center in Washington, D.C.
- More information at: <https://www.washingtonautoshow.com/mobilitytalks/>

Autonomous driving

- Overall the National Highway Traffic Safety Administration has estimated that Level 2 advanced driver assist systems could potentially address nearly 89 percent of crashes*
- However, some leading automakers are seeking even higher levels. General Motors is currently discussing their vision of the future for zero, zero, zero
 - 0 deaths
 - 0 congestion
 - 0 emissions
- Such an approach clearly would require autonomous vehicles beyond Level 2.

*NHTSA V2V Rulemaking Notice 3863

Autonomous driving legislation & regulation

- Proposed National AV Start Act (SB 1885) is stuck in Senate. If and when passage will occur is unclear
- Already 29 states have stepped into the vacuum and now have various types of regulation to allow testing of autonomous vehicle. *
- A total of 41 states are considering some type of legislation/regulation for autonomous vehicle testing*
- Groups such as the Governors Highway Safety Association (GHSA) have called for states to establish their own autonomous regulation

National Council of State Legislatures report on Self-Driving Vehicles Enacted Legislation, August 27, <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>

Autonomous vehicle timing

- Many claims, little clarity -- but coming soon
- Waymo has autonomous vehicles in testing applications in multiple cities and states today
- General Motors leaders say their autonomous division Cruise will have a Level 5 car on the road next year in ride sharing fleets
- Fisker sees their Orbit working in corporate campus environments in 2019
- City of Columbus Ohio has reported they will have autonomous vehicles in shuttle operation by December of this year.
- Mercedes parent Daimler's head of automated driving Michael Hafner has said by 2020/2021 "we will bring fully automated driving to the market."
- Ford has said it will launch the technology "at scale" in 2021

Do consumers want autonomous vehicles?

- Existing research sees limits on public's interest in and willingness to buy and use autonomous vehicles
- Nearly half of consumers in a recent Cox Automotive survey said they would never buy a Level 5 fully autonomous vehicle*
- The number of people who are unwilling to buy such technology is actually increasing. Two years ago only 30 percent of those surveyed said they would never buy an autonomous vehicle*
- Even those who feel roads would be safer with AVs is declining by a full 18 percent reports the survey*
- However, there clearly is an interest among early adopters for Level 5

*Cox Automotive Consumer Attitudes Survey, August 16, 2018

Resistance to autonomous vehicles growing

- In addition to growing consumer uncertainty, more groups are expressing concerns about the technology.
- The Insurance Institute for Highway Safety (IIHS) Chief Research Officer Dave Zuby has said of systems in use or being developed by Tesla, Mercedes-Benz, BMW and Volvo ““We don't think any of these ... systems can be relied on”
- An opinion piece by the leading trade publication Automotive News Technology and Engineering Reporter Richard Truett said “... autonomous vehicles should be about 10th on [automakers] priority lists.”
- Leading consumer advocate magazine Consumer Reports had been strongly critical of both the technology and existing regulation

Autonomous vehicles are coming

- Despite resistance from safety groups and consumer uncertainty...
- The momentum is clear
- Almost every volume automaker in the United States is working frantically on autonomous driving technology
- This focus is seen among automakers in most other auto producing countries
- Some may partner with tech companies for the hardware and software, others will develop all or most of the equipment in-house
- Lack of any existing federal legislation is a serious concern for automakers, but is not slowing work
- The law is unclear, but the vehicles will be here
- <https://www.washingtonautoshow.com/mobilitytalks>