



What Will the Highway of the Future Look Like?

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Presentation Overview

- **Automated Vehicles**
- **Connected Vehicles**
- **Potential Impacts**
- **Shared Mobility and Automation**
- **Conclusions**





Automated Vehicles

Automated Vehicles (AVs)

- Self-driving car, driverless car, driver-free car
- Vehicle operation without active physical control or monitoring by human driver
- Five levels of Automation NHTSA
- Technology companies, major auto makers pursuing
- Senses environment with advanced technologies
 - Radar/lidar, GPS, mapping, computer vision



Driverless car features

Lidar

Accurate within 2 cm, the Lidar is a rooftop ranging system that takes a 360-degree picture of the car's surroundings.

Lane guidance

Recognizes lane markings and knows the difference between the road surface and boundary lines.

Radar

Prevents accidents by detecting obstructions in the car's blind spots.

Stereo vision

Creates a real-time 3D image of the road ahead using two windshield-mounted cameras.

Infrared camera

Extends vision at night with these infrared headlamps.



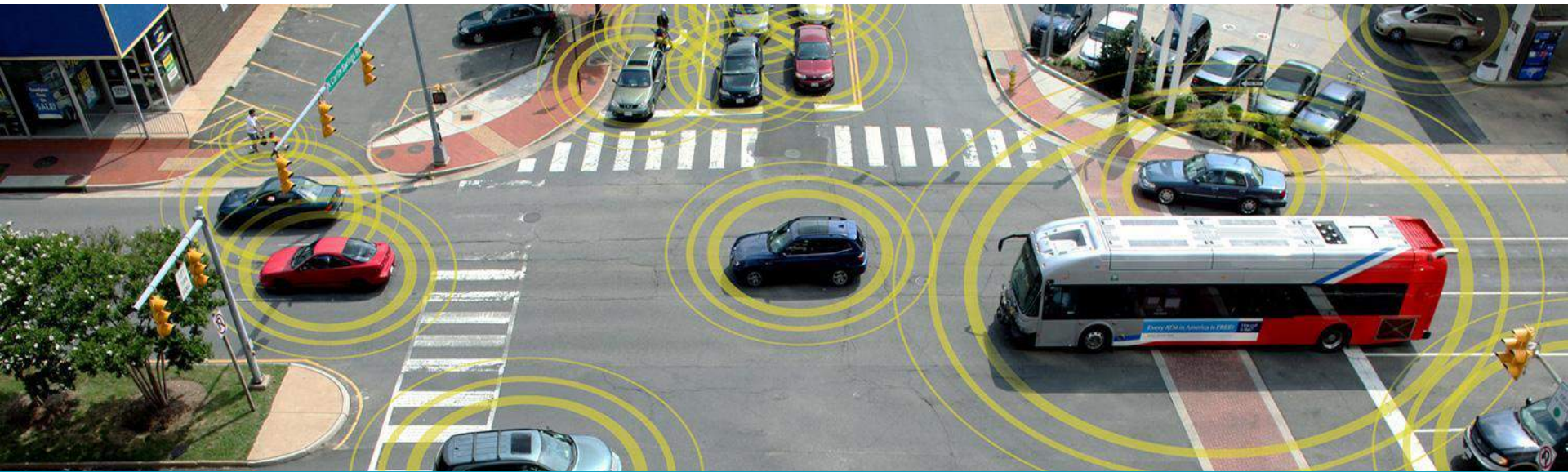
Source: Northbridge Insurance

GM “Motorama” Expo, 1956

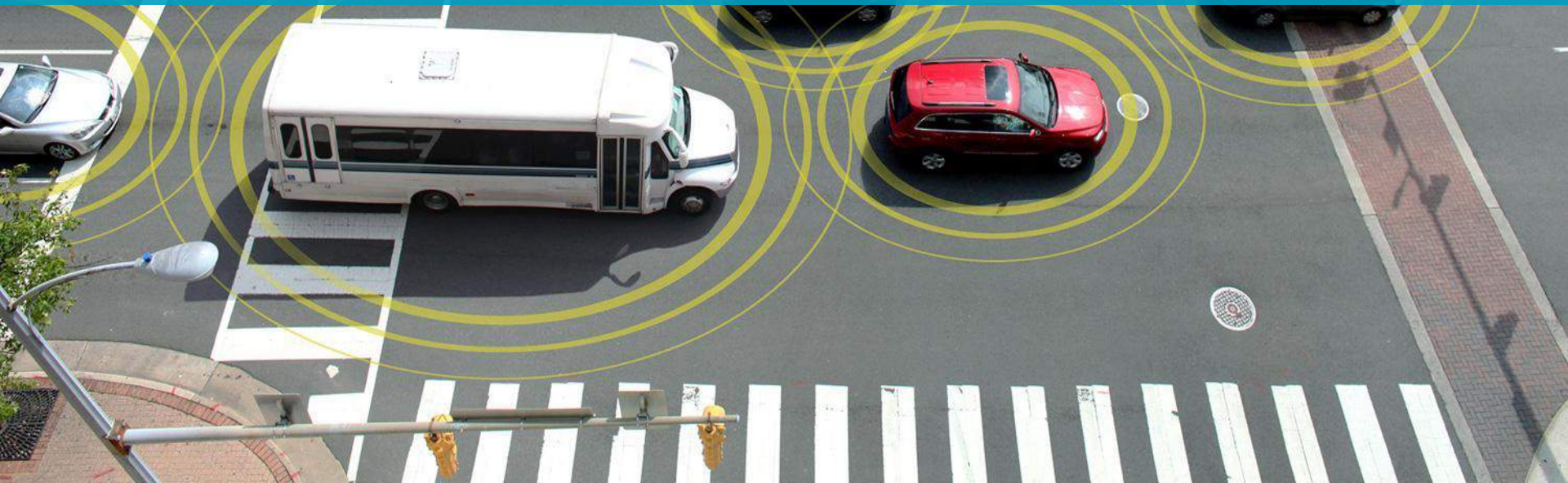
“Motorama”

- Automated vehicle needed “help” sensing its surroundings
- Central control tower allows access and guides rest of the journey
- Who is in the control tower???





Connected Vehicles



Connected Vehicles

- Vehicles that are able to communicate wirelessly among each other and infrastructure
- DSRC, V2V, V2I
- Technology is much more ready than AVs
- Who sets the rules?
 - TSP for higher-occupancy vehicles
 - Data sharing/privacy issues
- Require collaboration between public and private sectors for real efficiency gains



Automated + Connected

Does an automated vehicle HAVE to be connected?

Likely in the future... but not as of now

Potential Impacts

- End of Traffic? Eh....
- Induced demand effect of AVs, potentially increased VMT
- SOV is the real enemy, this requires behavior change



Shared Mobility + Automated Vehicles

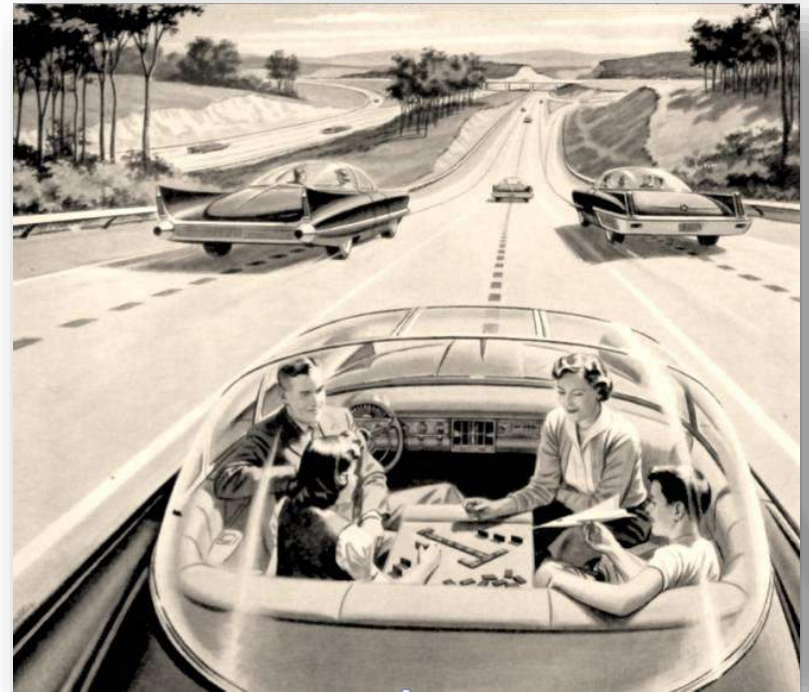
- Hard to predict future vehicle types and business models
- “Mobility as a Service” – gaining momentum
- Recent business deals point to combination of shared mobility and automation



Conclusions

Automated and connected vehicles will have a large impact on the way we travel

- Exactly how it looks – who knows??
- Automated + Connected
- Public/Private cooperation is critical
- Induced demand is a possibility
- SOV reduction on a large scale with AVs + shared mobility




Weekly Newsletter: Innovative Mobility

LAST WEEK IN INNOVATIVE MOBILITY


January 25th - January 31st, 2016

RIDESOURCING/TNCS




São Paulo, Brazil proposes a plan to require TNCs to pay mileage fees and provide real-time data for ridesourcing trips within the city. Complete with safety, comfort, and vehicle quality standards, the plan enables transportation officials to better manage congestion in the city.

RIDESOURCING/TNCS




French officials have fined Uber \$1.3 million for violating laws requiring private cars for hire to return to a parking area while waiting for new passengers to request rides. The law allows for licensed taxis to cruise and wait for clients without returning to a home area.

APPS



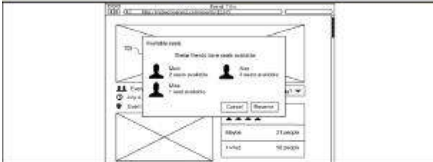
Lyft announces that it will partner with the City of Los Angeles and Xerox in the new Go LA app, a mobile trip-planning application that incorporates both public and private transportation modes in LA. The app allows users to choose the shortest, most affordable, or most sustainable routes through the city.

RIDESOURCING/TNCS




Lyft agrees to pay more than \$12 million to settle a class-action lawsuit in California. The settlement includes the extension of benefits and arbitration rights to drivers. The company will no longer be able to deactivate drivers without clear notice, explanation, and an opportunity to contest the decision.


RIDESHARING



Facebook published a patent application laying out plans to incorporate a ridesharing platform into its "Events" feature. Users would be able to coordinate rides to and from events with friends or other Facebook users.

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 Innovative Mobility Research (IMR) is based at the Transportation Sustainability Research Center (TSRC) at the University of California, Berkeley



Created By: Adam Stocker

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Questions?



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