A Look at the Legal Environment for Driverless Vehicles

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Driverless Vehicles

Motor vehicles

"Motor vehicle" means a vehicle driven or drawn by mechanical power and manufactured primarily for use on public streets, roads, and highways, but does not include a vehicle operated only on a rail line. 49 U.S.C. 30102(a)(6)

Operate themselves – not controlled by human drivers

Semantic Struggles

"Driverless vehicle"

"Autonomous vehicle"

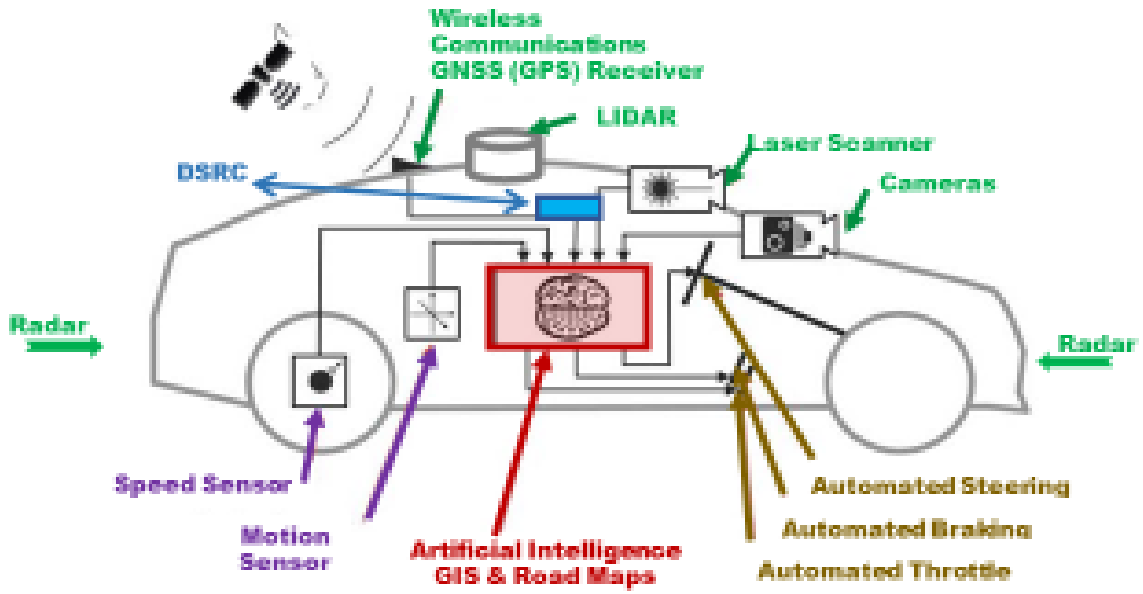
"Self-driving vehicle"

"Automated vehicle"

"Highly Automated Vehicle (HAV)"

Image Source: https://www.mercedes-benz.com/wp-content/uploads/sites/3/2015/01/01-Mercedes-Benz-Autonomous-Truck-Logistic-Future-Truck-2025-1180x6862-1180x686.jpg

Driverless Vehicle Technologies



Artificial Intelligence

Automated Controls

DSRC Radio Transceiver

Internal Vehicle Data

External Data from Sensors, Maps, and Other Vehicles

Driverless Vehicle Technologies

Artificial Intelligence

- Distributed
- Data Analysis
  - Pattern Recognition
  - Deep Learning
- Prediction
- Control actuation

Automated Controls

- Electronic actuators
- SCADA systems

Driverless Vehicle Technologies

Input Data from Maps and Sensors

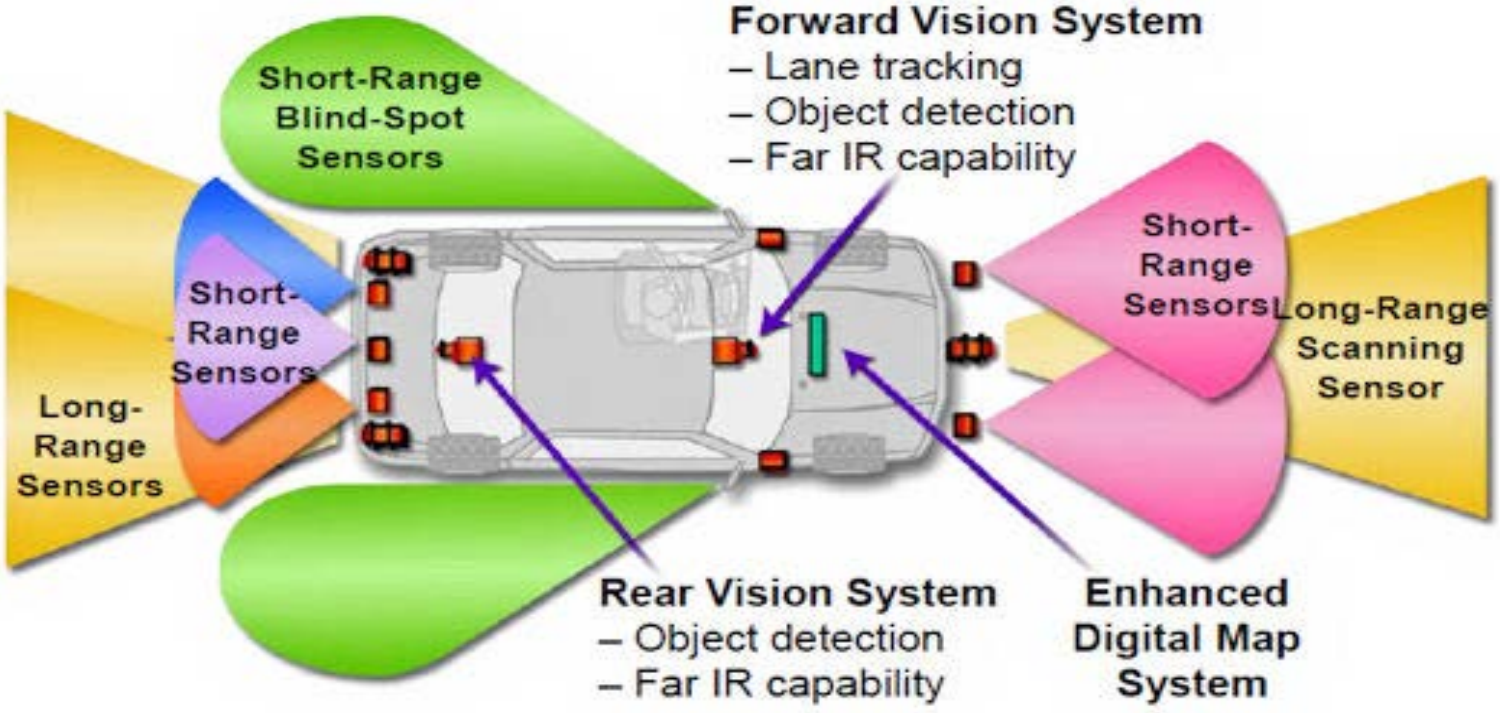


Image Source: INQUISITR http://www.inquisitr.com/1236826/autonomous-vehicles-are-the-wave-of-the-future-says-stephen-diaco/

Driverless Vehicle Technologies

Dynamic Digital Maps

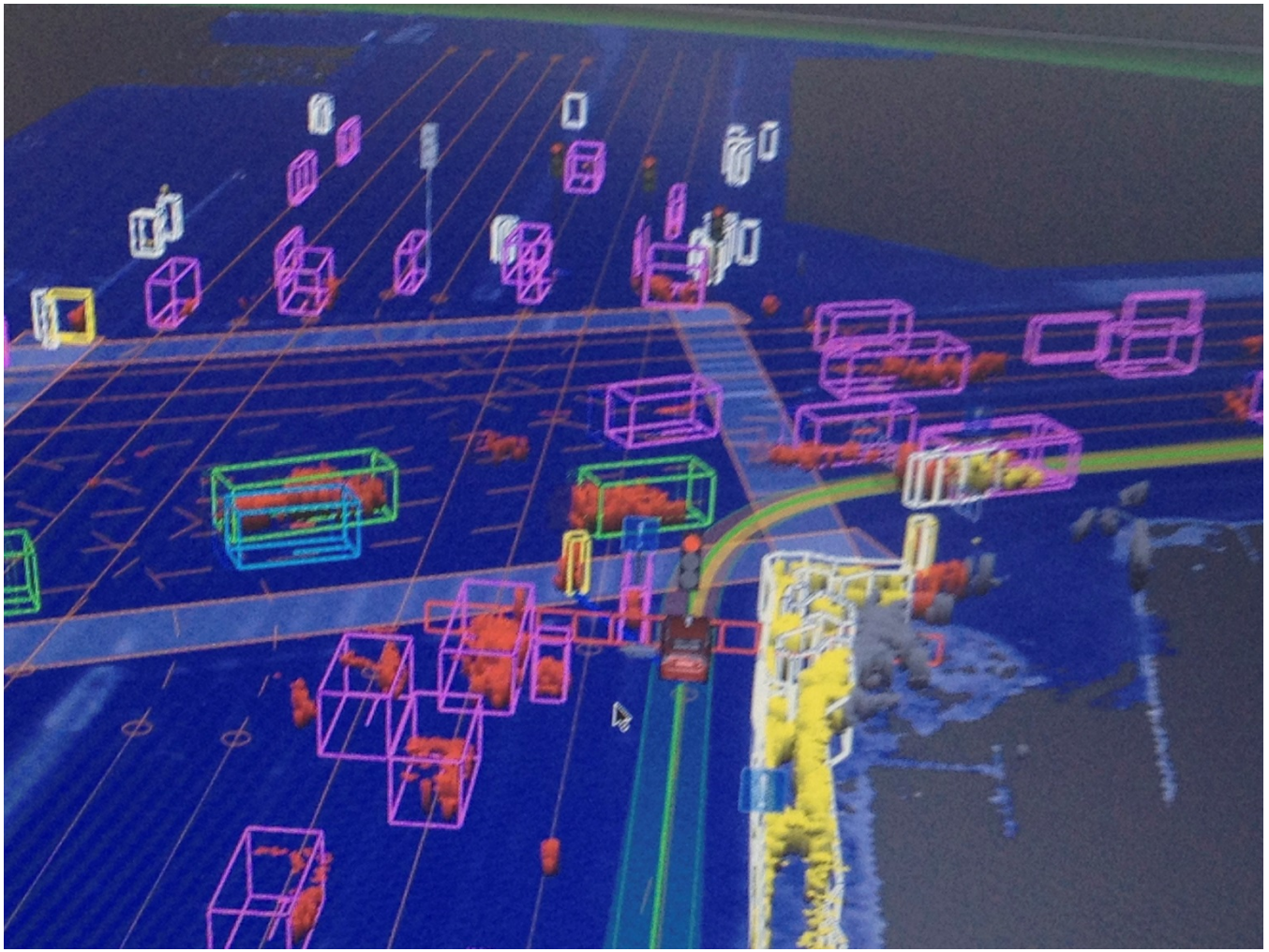
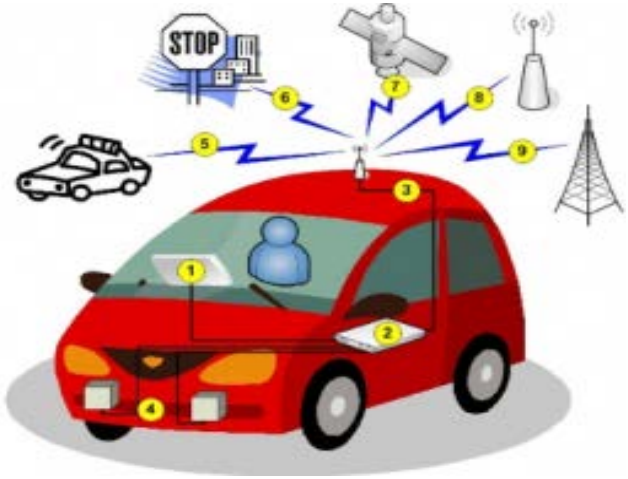


Image Source: http://www.hurriyetdailynews.com

Driverless Vehicle Technologies

COMMUNICATIONS



Vehicle to Vehicle over DSRC

Wi-fi, including private networks

Cellular

Satellite

V2V Connected Vehicle Technologies could be used in driverless vehicles

NHTSA proposed Motor Vehicle Safety Standard 150

Operational Data from Internal Vehicle Sensors is automatically transmitted over DSRC network ten times a second to other nearby vehicles.

Data for Real-time Situational Awareness about roadway environment is communicated into the vehicle from outside sources (e.g., position and heading of nearby vehicles)

Two-way DSRC Transceiver "broadcasts" Unencrypted vehicle operation data ten times a second

Different

Intelligent Transportation Technologies

Connected Vehicle Technologies

Transmit and Receive vehicle operation data

- Vehicle-to-vehicle (V2V)
- Vehicle-to-infrastructure (V2I)
- Vehicle-to-whatever (V2X)

Function as real-time data source regarding behavior of other nearby vehicles in the contest of driver-operated vehicles, as well as automated and driverless vehicles

Connected Vehicle Technologies were developed to warn human drivers

Automated & Driverless Vehicle Technologies

Automate some or all driving tasks

Driverless vehicles function by generating and acting on situational data about

- Interior vehicle operations
- Roadway infrastructure
- Roadway occupants

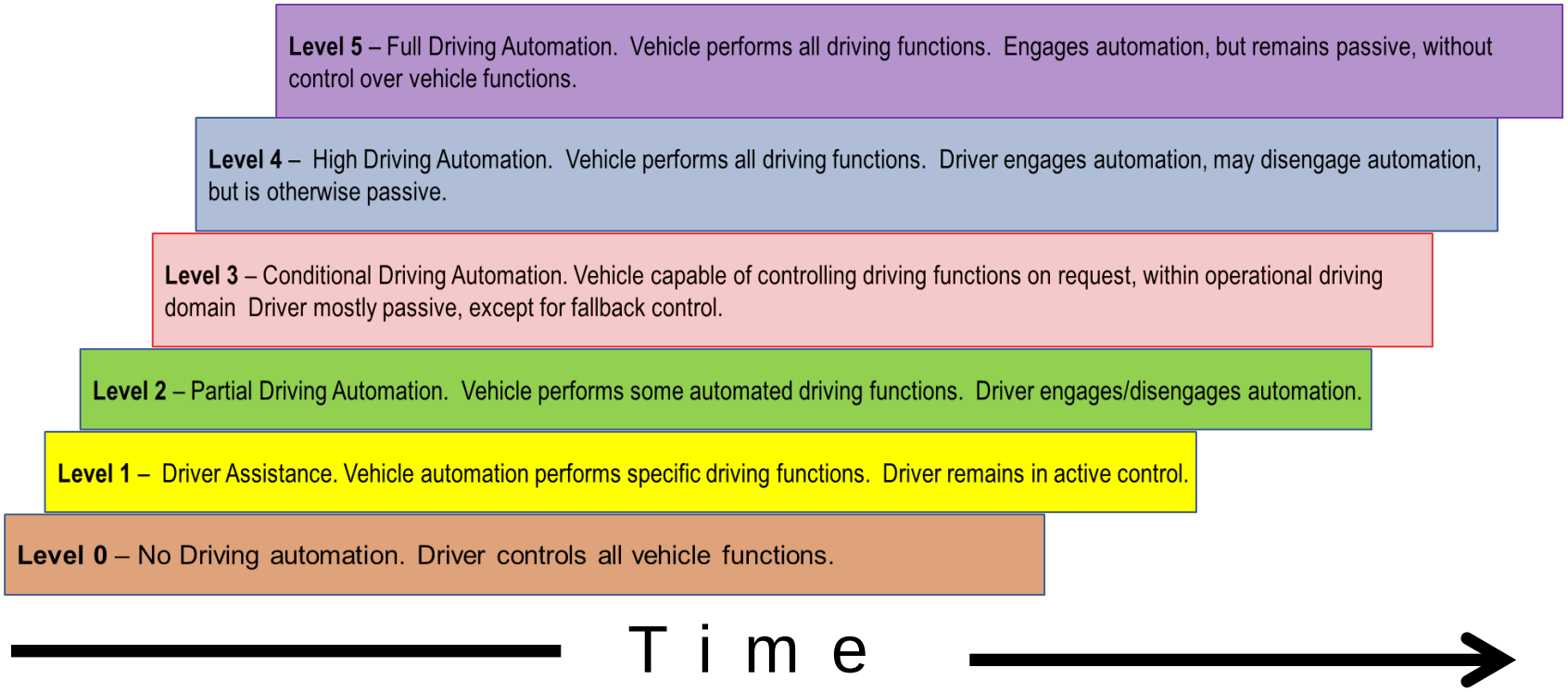
Driverless vehicles may use data from V2V Technologies as additional data inputs about other roadway users

Automated Vehicles are likely to include *Connected Vehicle Technologies*

Driverless Vehicle Technologies

AUTOMATION

Vehicles become Driverless through Increasing Levels of Automation



Source: SAE J3016 – "Taxonomy and Definitions For Terms Related to Driving Automation Systems for On-Road Motor Vehicles" (Rev. 9/20016).

Driverless Vehicle Legal Issues

Civil Liability

Early Autonomous Vehicle

Winterbottom v. Wright, 152 Eng. Rep. 402 (Ex. 1842)
(no action against negligent "remote" manufacturer).

“AS THE LAW STANDS”

Puck Magazine
April 16, 1902

The caption reads:
“AS THE LAW STANDS:
Owner (To Chauffeur) — Don’t stop!
It only costs about ten dollars apiece to run them down. I must break the record even if it costs a hundred!

Financial Responsibility for Crashes

1904

Lloyd's Offers First Automobile Coverage.

1925

Connecticut Financial Responsibility Law

1927

Massachusetts Mandatory Auto Insurance

MacPherson v. Buick Motor Co, 111 N.E. 1050 (N.Y. 1916)
(rejects *Winterbottom*—Ultimate Purchaser May Sue Manufacturer for Negligently Constructed Wheel)

Manufacturer Strict Liability

Greenman v. Yuba Power Product, Inc., 59 Cal.2d 57, (1963).
Manufacturer "Strictly" Liable for Defects in Product.
Extended to All Sellers in Chain of Distribution.

Image Source: Edward C. Martin, Samford University

Public Policy Challenge — Solvency and Injury

- State Mandated Vehicle Insurance

- Washington--$10,000 in 1963.

  Today would be $79, 359, but limited to $25,000 (CA is $15,000)

- Uninsured motor vehicles.

  Over 4 million in CA (14.7%)

Causes of Crashes

94% are due to human error or judgment!

2% Vehicle Problem: tire/wheel related, brake related, steering/transmission/engine related.

2% Driving Environment.

2% Unknown

Source: NHTSA Crash Stats (Feb. 2015)

In over 35% of traffic fatalities, the brakes are not applied.

Source: Calif. DMV, Stanford Center for Internet and Society

Who is Responsible?

Current "Products Liability" Answer

- If Caused Only by Defect in Manufacture, Design, Warning, Instructions — The OEM and Others in the Chain.
- Move OEMs from 2% responsibility to 80%-100% responsibility?

--Defect in Manufacture — Does not Meet OEM's Design Specs.

--Defect in Design — RAD (Reasonable Alternative Design).

Calif. And a Few Other States—Violates the Expectations of a "Reasonable Consumer."

--Warnings and Instructions — Over Promotion, Ineffective Manuals

--Duty to Update

--Foreseeable Use/Misuse

— Tesla Backseat Drivers!

--Permissive User Statutes

— Is Owner Also Responsible?

Some Low Hanging Fruit?

"Volvo, Google, and Daimler AG's Mercedes-Benz have all pledged to accept liability if their vehicles cause an accident."

http://cohen-lawyers.com/wp-content/uploads/2016/08/WestLaw-Automotive-Cohen-Commentary.pdf

Driverless Vehicle Legal Issues

Insurance Law

How Will Driverless Vehicles Affect Public Policy Surrounding Automobile Insurance?

- The Best Accident is the One That Does Not Happen (Frequency).
- Next Best Accident is the One with Less Injury—How Hard do you Land? Kinetic Energy=1/2Mass x Velocity^2 (Severity).
- Next Best Accident is One in Which Injured Parties are As Fully Compensated as Possible (Compensation).

Counting New Costs

Claims currently uncompensated or undercompensated will now flow up to the OEM,

Consider some examples:

- Parent drives car into tree, injuring parent and child.
  No insured claim—Family exclusion in auto policies.

- Car drives parent and child into tree.
  Products claim against OEM.

- Trucker drives truck into tree.
  Workers compensation is the only remedy.

- Truck drives trucker into tree.
  Tort claim against OEM.

Serious injury, but only $15,000 in insurance or assets.
Claim's value is $15,000.

If a products liability claim, the OEM's insurance and assets are available to pay the claim.

Data?

Data?

Data?

- Does adequate data for insurance pricing exist?
- Will AVs reduce accidents by 94%?

  (Casualty Actuarial Society study - "49% of accidents contain at least one limiting factor that could disable the technology or reduce its effectiveness.") http://www.casact.org/pubs/forum/14fforum/CAS%20AVTF_Restated_NMVCCS.pdf

- Will prior data be a credible predictor of future costs?
  - One download changes the safety profile of the entire fleet.
  - Moore's Law?

Mandatory Auto Insurance?

- All States (except New Hampshire) mandate a minimum level of auto insurance.

  These were adopted when death's per VMT were at their height.

  53/Billion VMT in 1958 - 11/Billion VMT today (but now rising!)

- Sound public policy if frequency, severity, and driver responsibility significantly diminish?

- Will focus shift to OEMs and fleet owners
  – much like the transportation network companies such as Uber and Lyft?

Municipal Liability ?

- Future V2V, V2I and V2X. Who is responsible when government designed infrastructure fails

  (Consider a traffic light showing green in all directions)?

- "The King can do no wrong" — Sovereign Immunity and the various forms in which governmental entities have waived it.

Image Source: USDOT

Driverless Vehicle Legal Issues

Criminal Law

Examples of Driverless Vehicle Criminal Law Issues

- **Distracted Driving** — Texting, etc.
  E.g., Nev., Fla., LB 627 (Neb.). Compare Germany:
  http://auto2xtech.com/germany-to-make-legal-automated-driving-technology-that-allows-eyes-off-the-road/

- **Hands on Wheel?** — N.Y. Recently Changed its law
  https://www.usatoday.com/story/tech/nation-now/2017/04/05/self-driving-car-tests-new-yrok/100077524/

- **Following Distance?** — Platooning – "Reasonable and prudent" Time; Distance; and "Sufficient space to enter and occupy without danger."
  M. Scribner, "Authorizing Automated Vehicle Platooning, a Guide for State Legislators",
  https://cei.org/content/authorizing-automated-vehicle-platooning

- **Traffic Citations? –** If cause engagement of technology, "deemed" to be operator or driver.
  Responsibility for citations? See CA Vehicle Code, sec. 38750(a)(4).
  CA proposed reg., sec. 228.28 ("manufacturer . .responsible for the safe operation of the vehicle, including compliance with all traffic laws . . . .")

- **Negligent Homicide?** — Manufacturer or Operator Responsible?
  F. Dauma and and S. Palodichuk, "Criminal Liability Issues Created by Autonomous Vehicles",
  52 SANTA CLARA L. REV. 1157 (2012).

- **DUI laws** — How will DUI laws apply to partly or highly automated vehicles?
  Level 3?
  Level 4?
  Level 5? (Driverless Vehicles)

Criminal Procedure Issues

Searches and Seizures of Driverless Vehicles

Electronic Communications

Tracking as a search or as a seizure

Cyberhacking Driverless Vehicles

Driverless Vehicle Legal Issues

Federal Regulation

Federal Motor Vehicle Safety Standards continue to apply – with waivers available for “highly automated Vehicles”

Federal Automated Vehicles Policy
(September 2016)

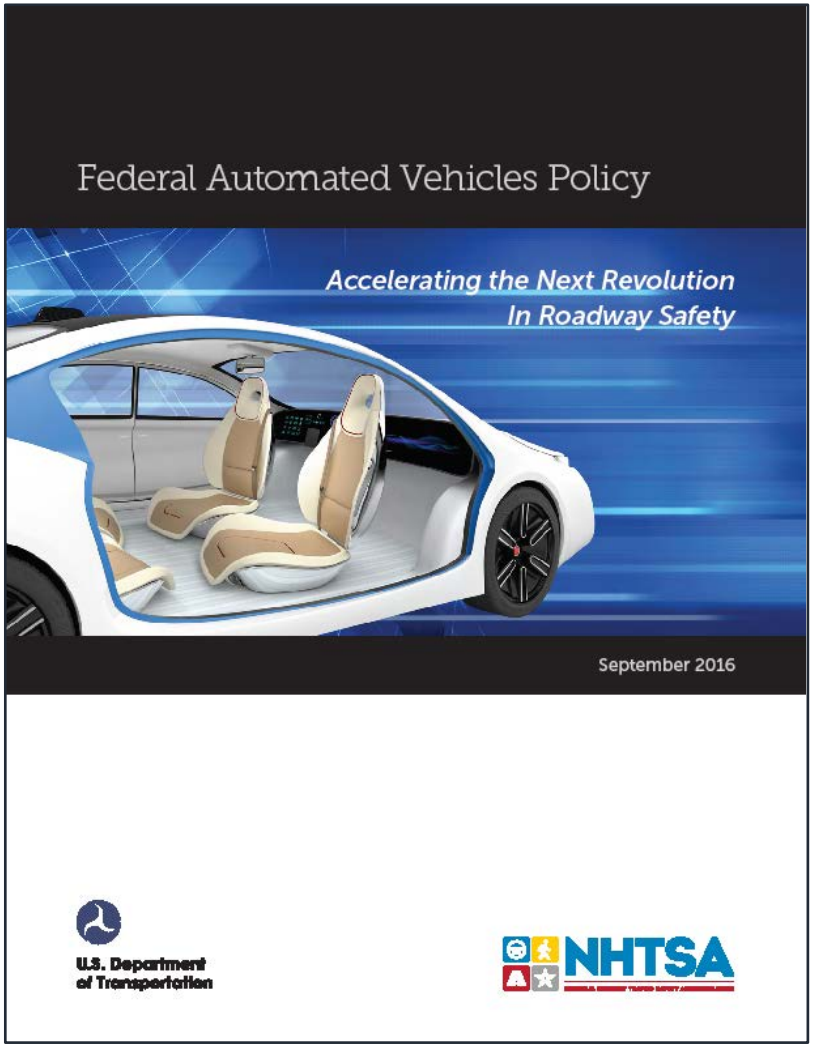


TABLE OF CONTENTS

Introductory Message

Executive Summary

I. Vehicle Performance Guidance for Automated Vehicles

II. Model State Policy

III. NHTSA's Current Regulatory Tools

IV. Modern Regulatory Tools

Glossary

Appendix I: NHTSA's Current Regulatory Tools

Appendix II: Regulatory Tools Used by FAA

Appendix III: Next Steps

Notes

Driverless Vehicle Legal Issues

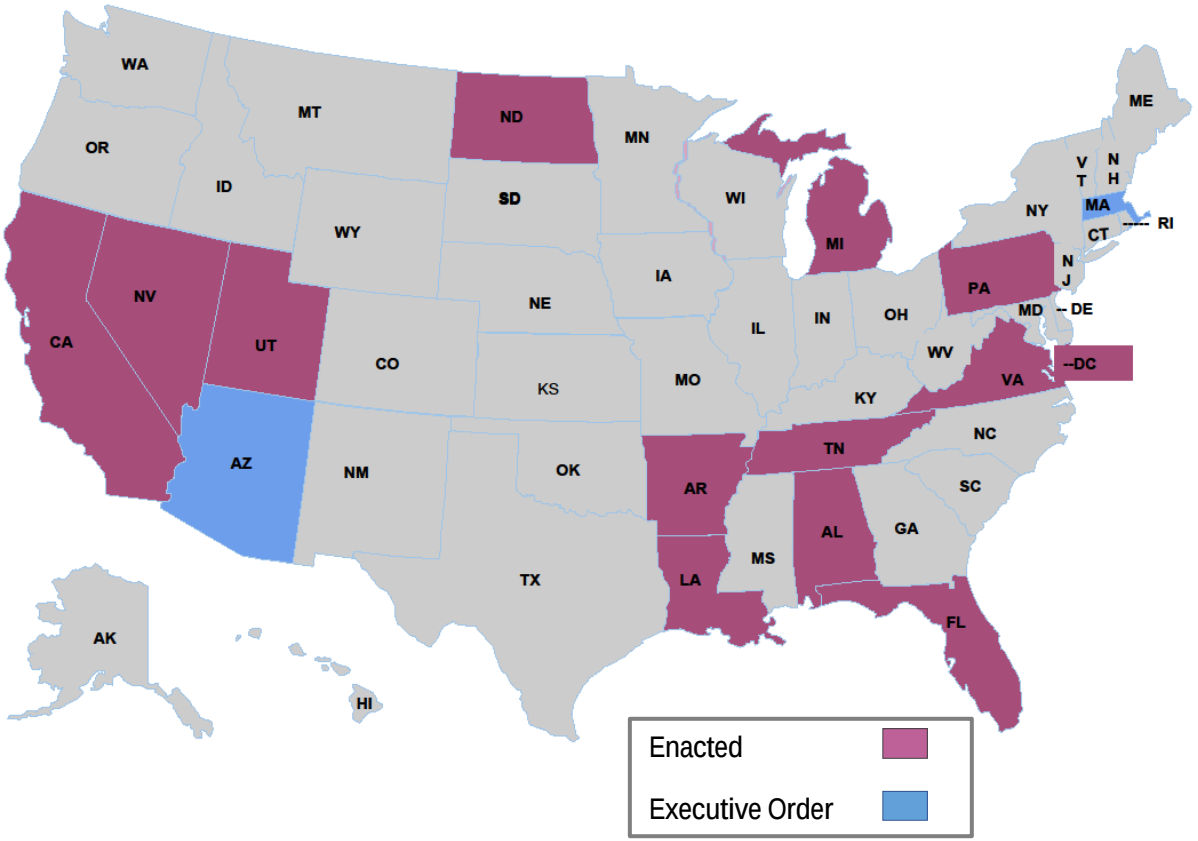
State Regulation

Many State Laws will affect Driverless Vehicles.

Some examples:

- State "autonomous vehicle" legislation
- State Laws Regulating Driverless Vehicle Data
  - Privacy laws
  - Data Ownership laws
  - Cybersecurity laws

Driverless Vehicle State Laws



Twelve states plus D.C. have autonomous vehicle statutes: New York, Alabama, California, Florida, Louisiana, Michigan, Nevada, North Dakota, Pennsylvania, Tennessee, Utah and Virginia.

Governors of Arizona and Massachusetts issued executive orders on self-driving cars.

In 2017, 32 states have introduced legislation. In 2016, 20 states introduced legislation.

Source: National Conference of State Legislatures, http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx

State Regulation of Driverless Vehicle Data

Data Ownership Laws

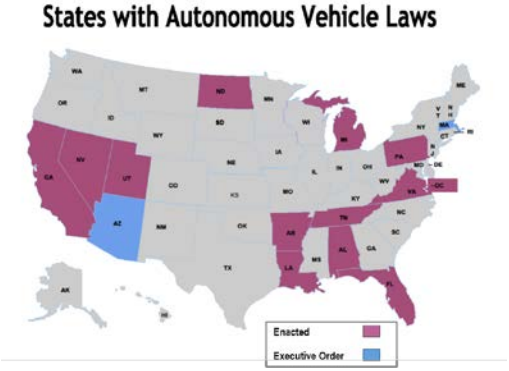
Privacy Laws

Cybersecurity Laws

Variations in Approaches of State Driverless Vehicle Laws

"Light Hand,

Heavy Hand"



- Florida Statutes sec. 316.85 (1) "A person who possesses a valid driver license may operate an autonomous vehicle in autonomous mode . . . ."
- California Vehicle Code sec. 38750 (adopted in 2012), plus 33 pages of adopted and proposed regulations.

California DMV Pending Regulation: "Autonomous Vehicle Testing and Deployment"

"Capability" (CA Vehicle Code sec. 38750(a)(2)) or Manufacturer's Designation? (SAE J3016, sec. 5).

Tesla v. Uber controversy in San Francisco

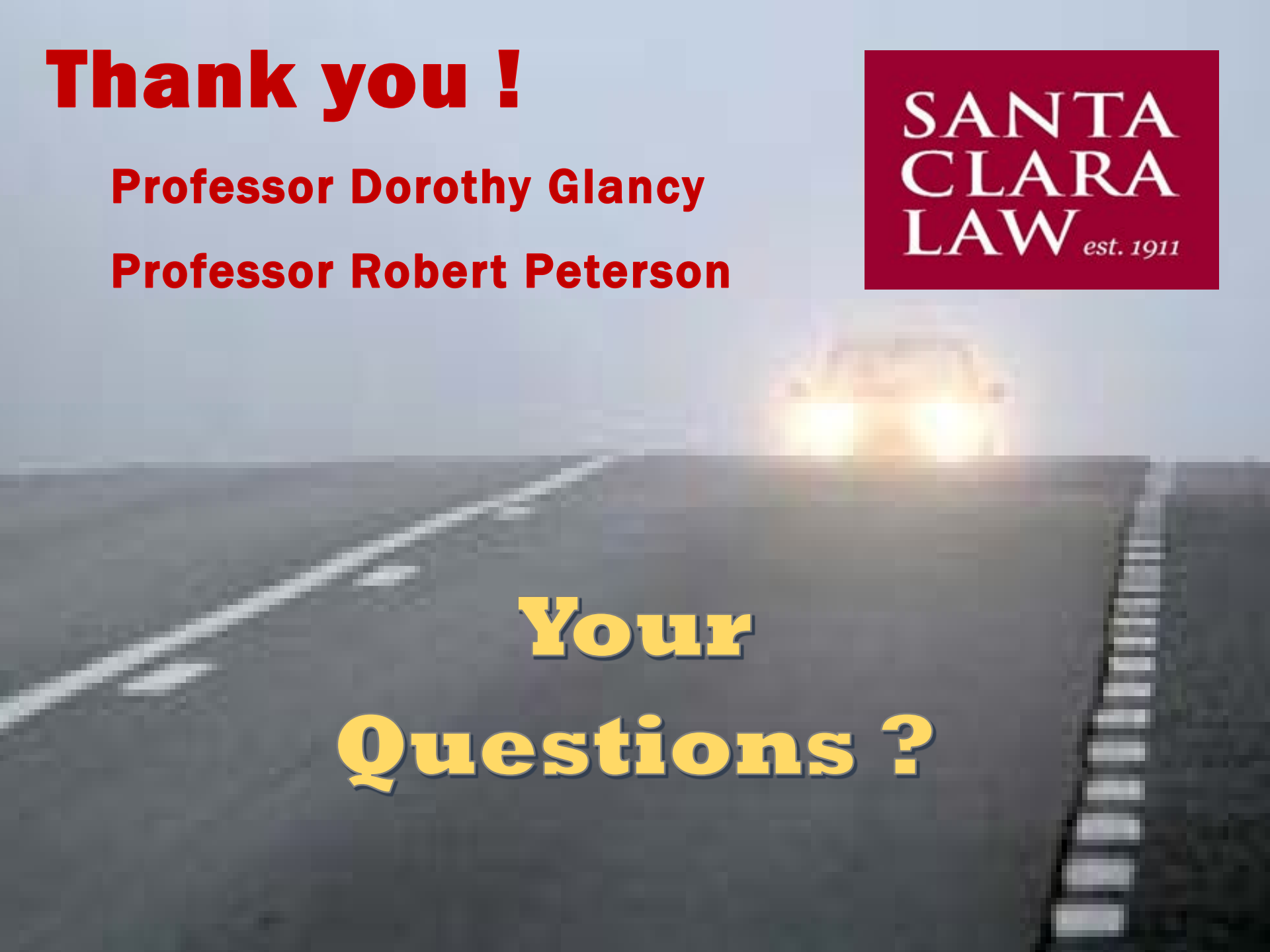
California's deployment regulations, if adopted, will be two years late.

As Driverless Vehicles emerge, The Legal Environment is responding:

- Driverless vehicle technologies will drive the legal system's responses to driverless vehicles.
- Some legal areas where legal adaptation is needed include insurance law, regulatory law, and cybersecurity law.
- State law currently controls the availability of driverless vehicles to the public.
- Federal preemption, particularly regarding driverless vehicle safety requirements, is possible, but difficult to predict.
- Driverless vehicles will have more profound impacts on mobility options, than on legal rules, which are likely to evolve more slowly than driverless vehicle technologies.

Thank you !

Professor Dorothy Glancy

Professor Robert Peterson

SANTA CLARA LAW est. 1911