TRUCK PLATOONING UPDATE

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November 2018

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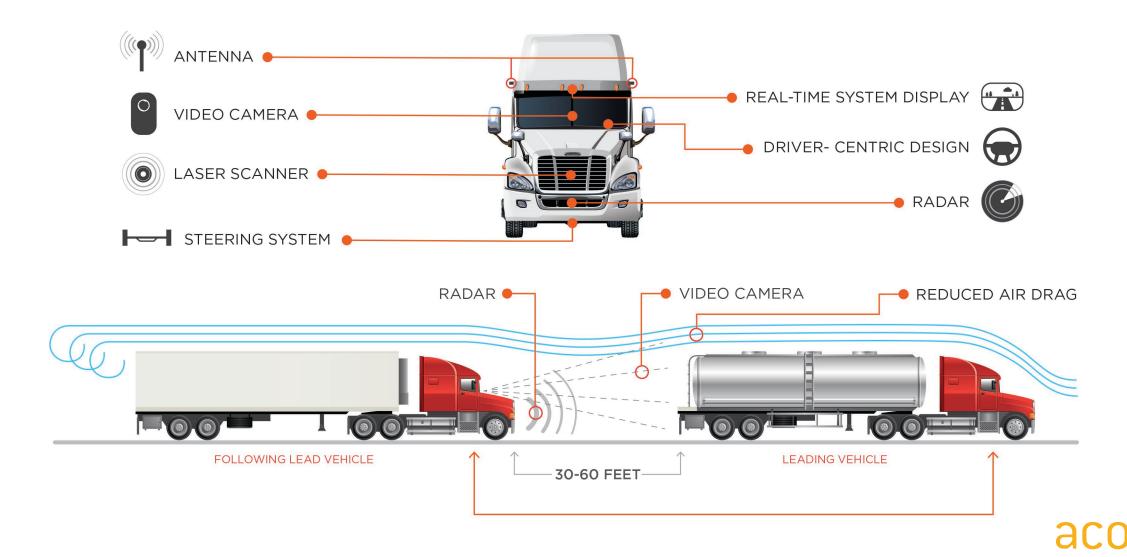
LEVEL OF AUTOMATION

HUMAN DRIVER AUTOMATED DRIVING SYSTEM MONITORS DRIVING ENIVIRONMENT MONITORS DRIVING ENVIRONMENT CRUISE CONTROL TESLA AUTOPILOT **DRIVERLESS** NO DRIVER **PARTIAL** CONDITIONAL HIGH **FULL AUTOMATION AUTOMATION ASSISTANCE AUTOMATION AUTOMATION AUTOMATION** The vehicle is capable Zero autonomy: Vehicle is controlled Vehicle has combined Vehicle has combined The vehicle is capable the driver performs automated functions. of performing all driving of performing all driving by the driver, but automated functions. all driving tasks. like acceleration and like acceleration and functoins under certain functoins under all some driving assist features may be streering, but the driver streering, but the driver conditions. The driver conditions. The driver included in the may have the option to may have the option to must remain engaged must remain engaged with the driving task with the driving task control the vehicle. control the vehicle. vehicle design and the monitor the and the monitor the environment at environment at all times. all times.

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TRUCK PLATOONING

- Cooperative Adaptive Cruise Control: Connected vehicle technology enables the vehicle to continuously communicate and coordinate travel with other trucks to follow each other at close proximity
- Level 1 Driver assistance
 - Vehicle controls coordinated speed and braking with the lead vehicles
 - Driver maintains steering control at all times (always ready to take full control)
- Level 2 Partially automated
 - Vehicle handles all steering, braking, and acceleration tasks
 - Driver responsible for watching traffic and responding to system prompts
- Driver-Centric not Driverless



TRUCK PLATOONING BENEFITS

Fuel Consumption

- \$70,000/year per truck in diesel fuel
- 20-39% of operating costs
- 43.7 billion gallons of fuel (2015)

Fuel Efficiency

- At 50-60 foot following distance:
 - 4-5% for lead truck
 - 10% for following truck
- 65% of long-haul miles could be platooned
 - Rural, divided, multi-lane interstates/highways (Texas A&M Transportation Institute)

TRUCK PLATOONING BENEFITS

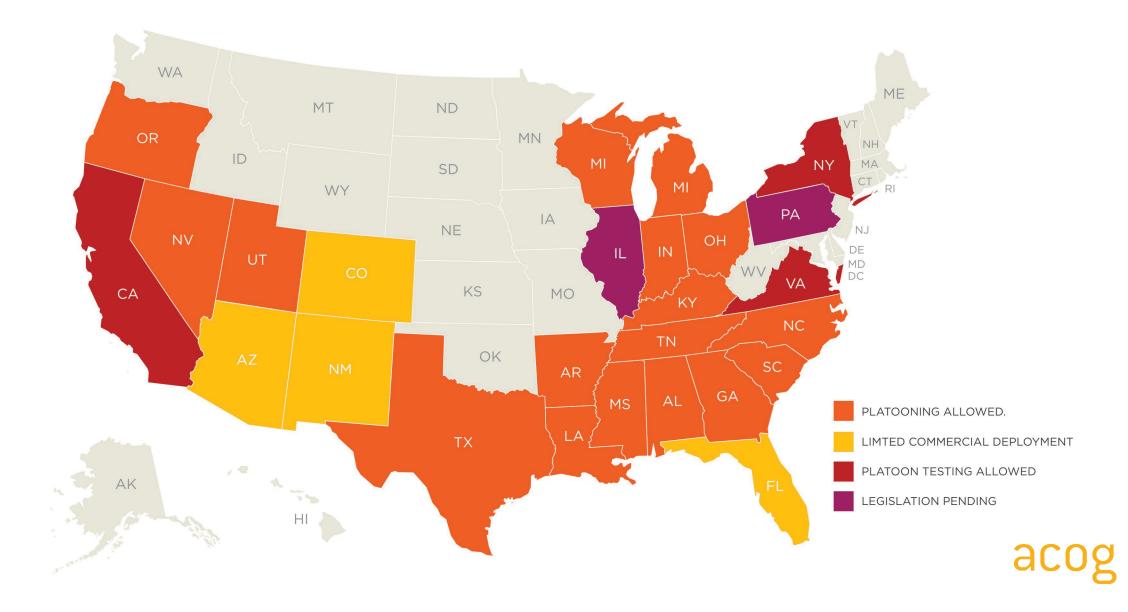
Truck-Related Crashes (2016)

- 4,317 people killed in crashes involving large trucks
- 72% were occupants of other vehicles
- 11% were nonoccupants (pedestrians, cyclists, first responders, roadway workers)

Safety Advances

- Technology: Radar, cameras, laser scanning
- Reaction time versus human driver alone
- Truck platooning can be restricted in severe weather or traffic conditions

ENABLING LEGISLATION PROGRESS



TRUCK PLATOONING IN OKLAHOMA

- Many states have following too closely (FTC) statutes (motor vehicle codes), including Oklahoma
- States working on possible agreements for multistate testing
 - I-10 corridor California, Arizona, New Mexico, and Texas
 - I-40 corridor Tennessee, Arkansas, and Oklahoma
- Driving Oklahoma Working Group
- Senate Interim Study 18-12 Study on Truck Platooning

SOURCES

- https://www.bts.gov/product/freight-facts-and-figures
- https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812451

QUESTIONS?

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