



Peloton

Driver-Assistive Truck Platooning – Commercial Deployment Outlook

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Commercial Platooning Based on Decades of R&D



EU - Platooning Challenge – 2016



EU (Sweden) - SARTRE 2009-Present



Germany – KONVOI 2005-09



Canada - PIT 2009



US – PATH, NREL, etc. '90s and ongoing



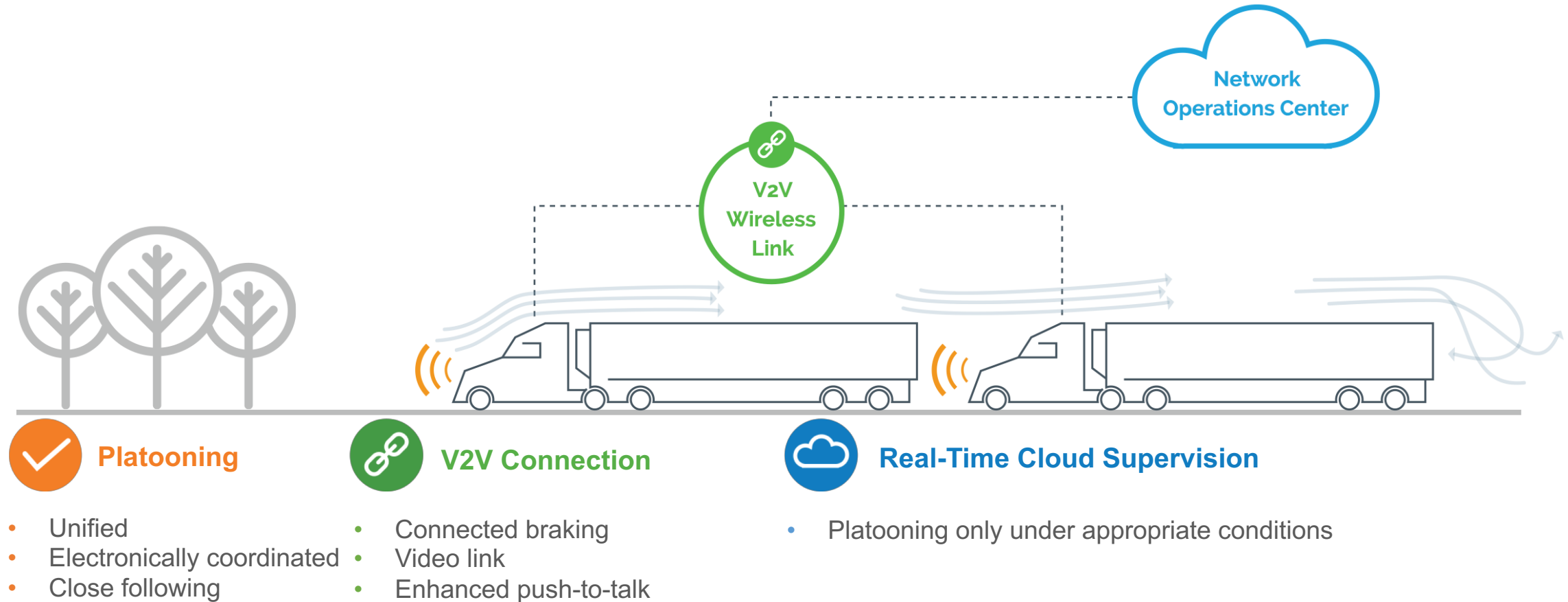
IL-based Navistar in IN - 2015

Driver-Assistive Truck Platooning Market Overview

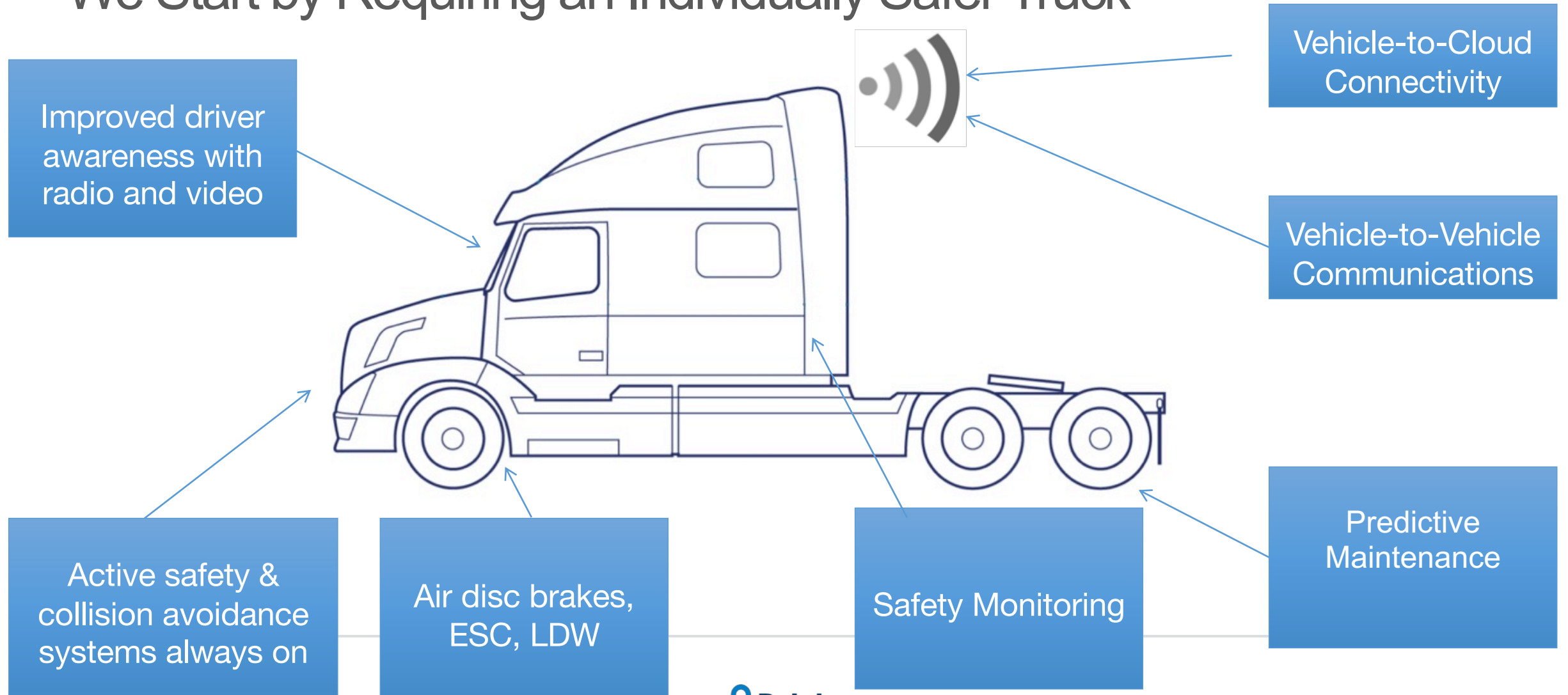
Many Companies in US, Europe and Asia Testing or Bringing Truck Platooning to Market



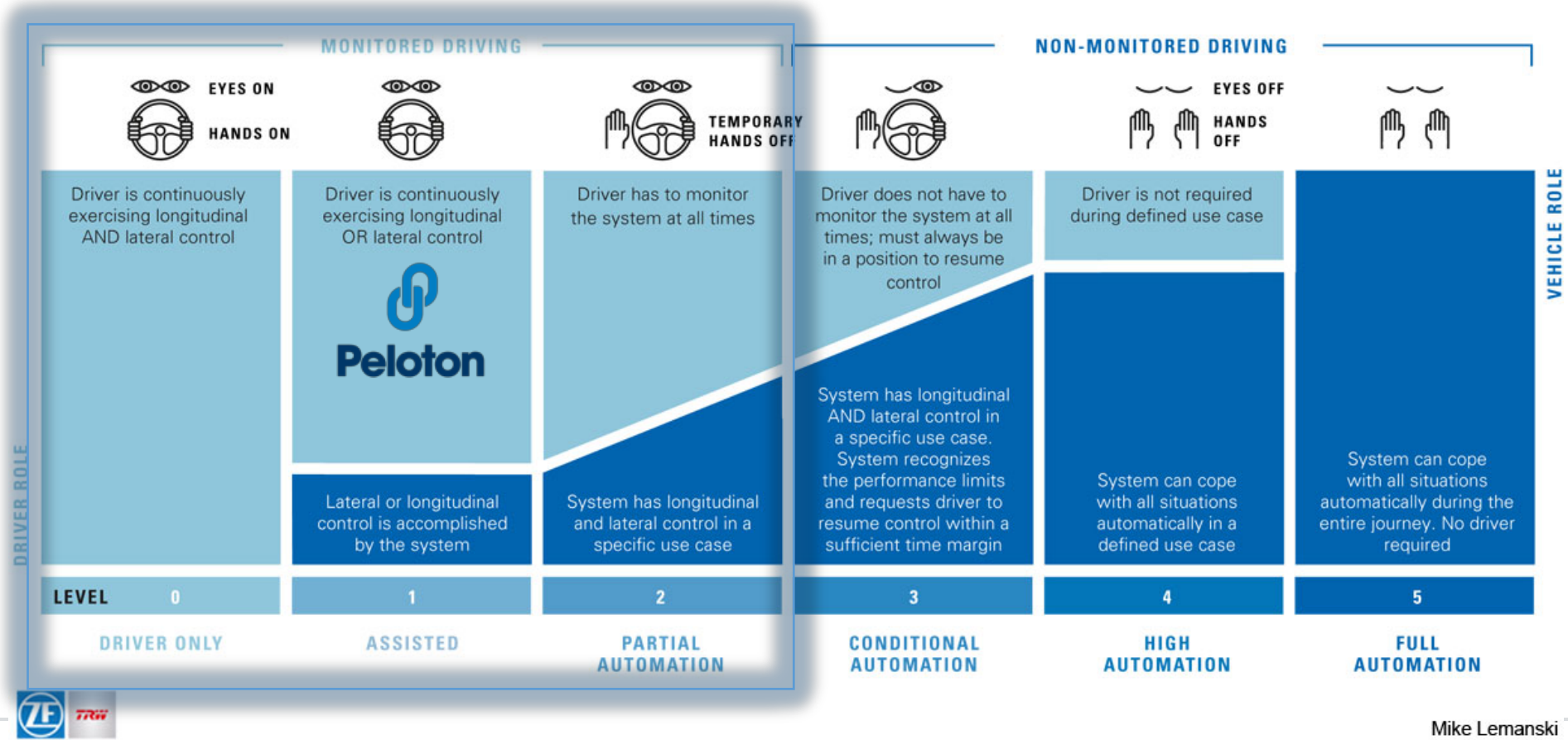
Peloton PlatooningPro: Driver Teamwork, Safety, Efficiency



We Start by Requiring an Individually Safer Truck



PlatoonPro: Driver-Assistance -- Not High Automation

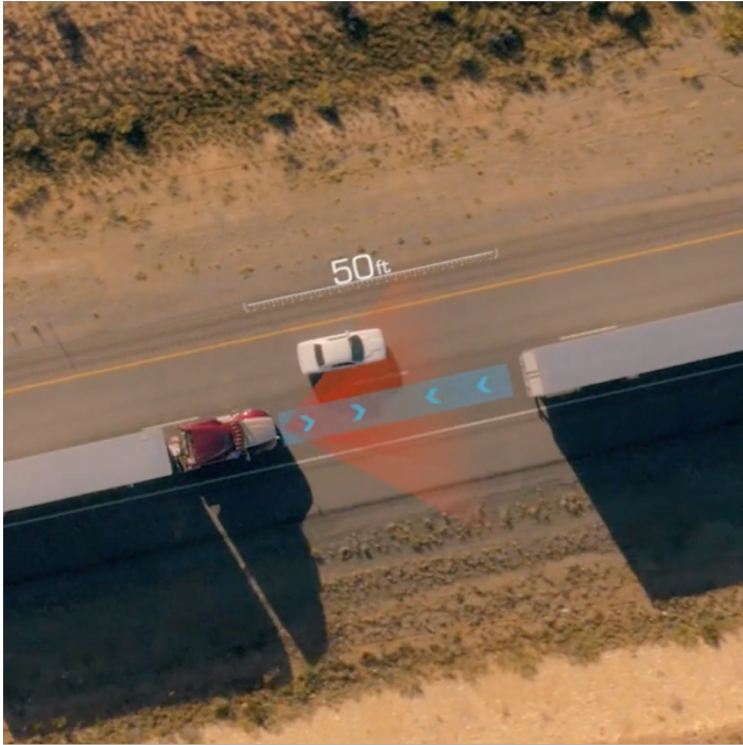


Mike Lemanski

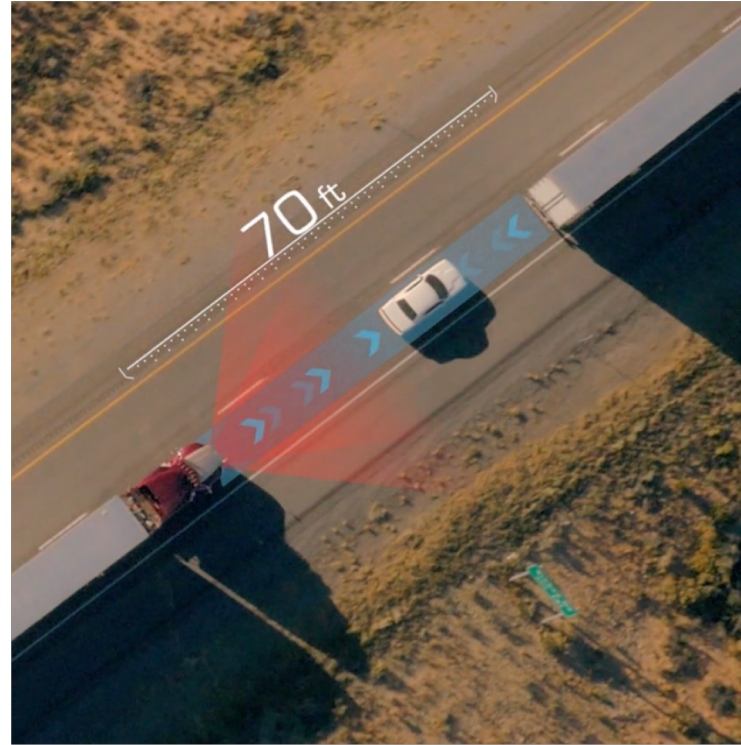


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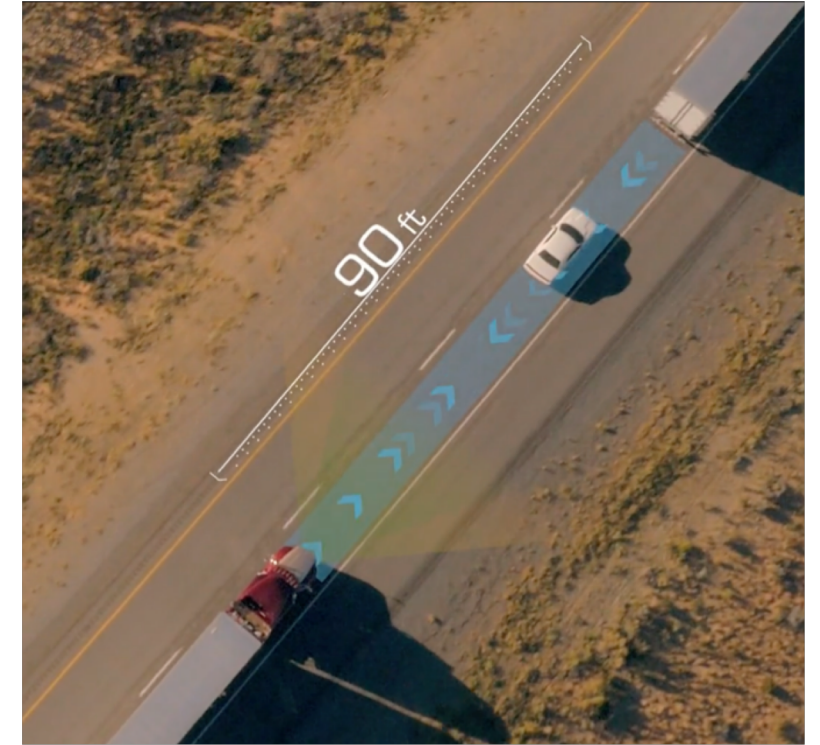
Safety: Handling Vehicle Cut-ins



Driver sees car cutting in and backs off
OR



If driver does not respond, system radar
detects cut-in vehicle and automatically
begins to back off follow truck



Follow truck will continue to back off to
safe manual following distance
(100+ ft) and then give full manual control
back to follow driver

Safety: Suitable Roads & Conditions

Network Operations Cloud (NOC) & Driver Procedures will limit platooning to:

- Multi-lane, divided, limited access highways
- Moderate or low traffic conditions
- Suitable traction conditions
- Appropriate topography
- Geofencing can provide further limits to exclude certain bridges, roadway types, and other areas



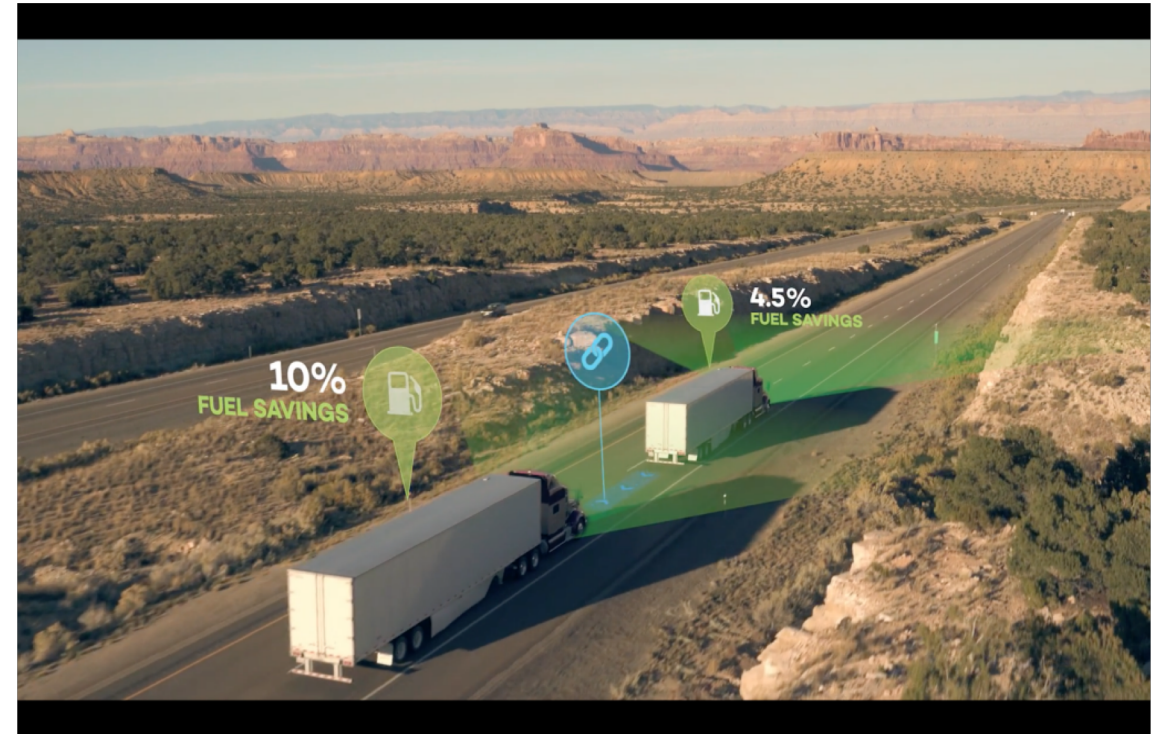
Benefits: Improved Fuel Savings, Safety, Fleet Management

Platooning Reduces Fuel Costs

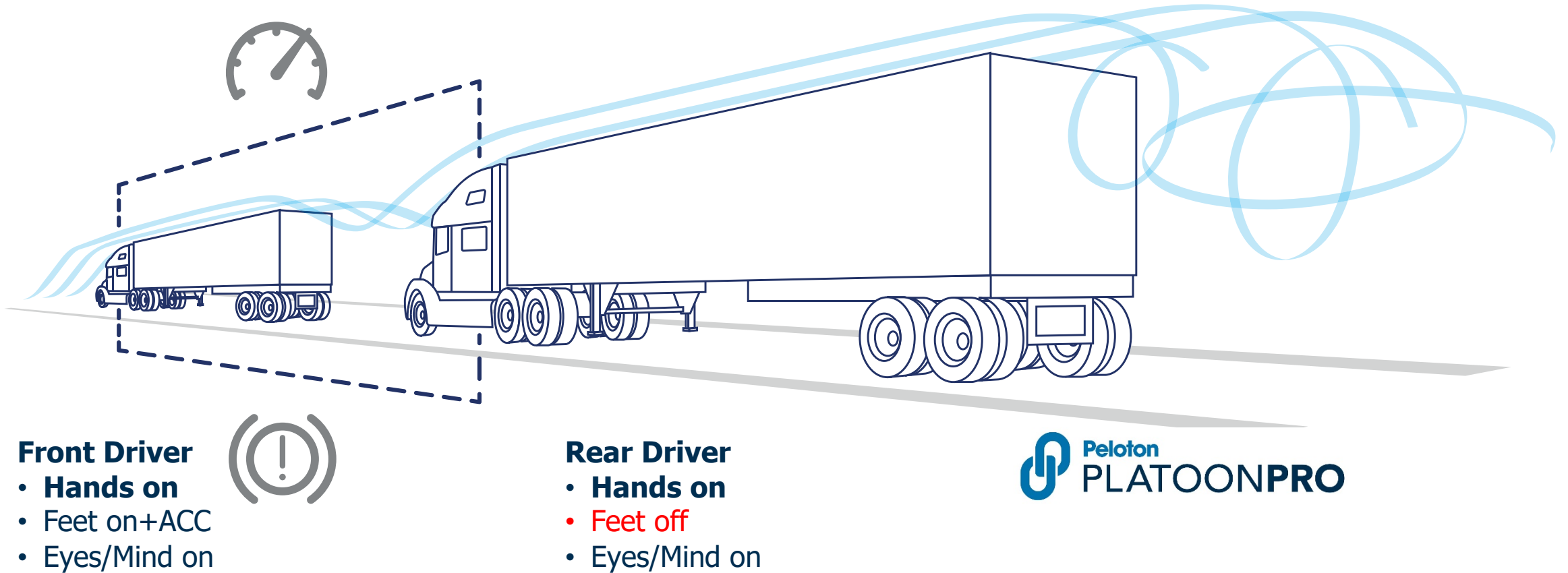
- 4.5% fuel savings for the lead truck
- 10% fuel savings for the follow truck
- Verified combined fuel savings of 7.25% savings at 40 foot gap at 65 mph (NACFE)

Peloton Provides Value to Fleets

- Economically viable with less than 1 year payback
- High-quality data and improved analytics for fleets
- \$700 billion U.S. trucking industry benefits by saving on fuel and enhancing individual truck safety



Pairs of Trucks, Both Drivers Steering At All Times



Drivers are Key



- Driver-informed design
- Trained, CDL-certified driver in both trucks
- Both Drivers fully engaged at all times
- Peloton Driver Training Program for each Fleet

“A driver will feel safer behind the wheel because the truck can hit the brakes prior to a human in critical situations...”
Dave Mercer - Peloton Driver (~3 million MTD)

Top Use Case: Single-Fleet, Hub-to-Hub Routes

Example Strong Customer Profile:

- 50+ “return-to-hub” runs (regional haul)
- Scheduled and manual NOC pairing
- Fleet drivers
- Homogenous tractor configurations



Operational Domain: Multi-lane, Divided, Limited Access Highways



Regulatory Picture: Platooning vs Automated Vehicles

Driver-Assistive Platooning Does Not Fall Under HAV Regs

Driver-Assistive Connected Vehicles & Platooning

- Connectivity and following distance-focused
- Governed by State following distance law (no obstacles from federal laws)
- **22 States** (and rising) allow commercial deployment
- Additional States allow testing and trials and are considering commercial allowance

Highly Automated Vehicles

- Governed by Federal laws (NHTSA, FMCSA) and State laws (DOT, Police, DMV)
- Authorized for testing (with test/safety driver on board) in several states
- A few states exploring initial commercial deployment with safety drivers

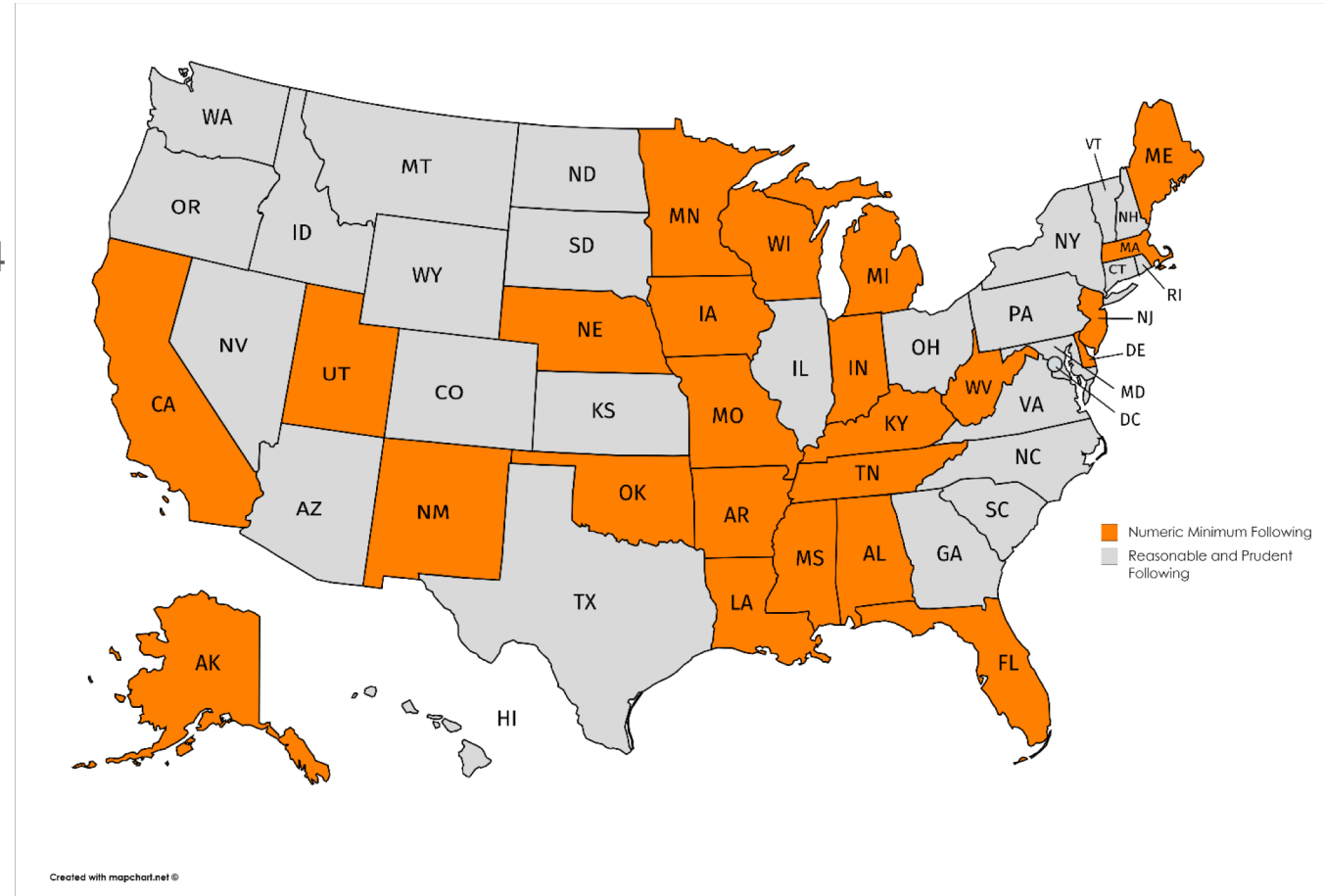
National Context: State Following Distance Laws

Numerical Minimum Following States

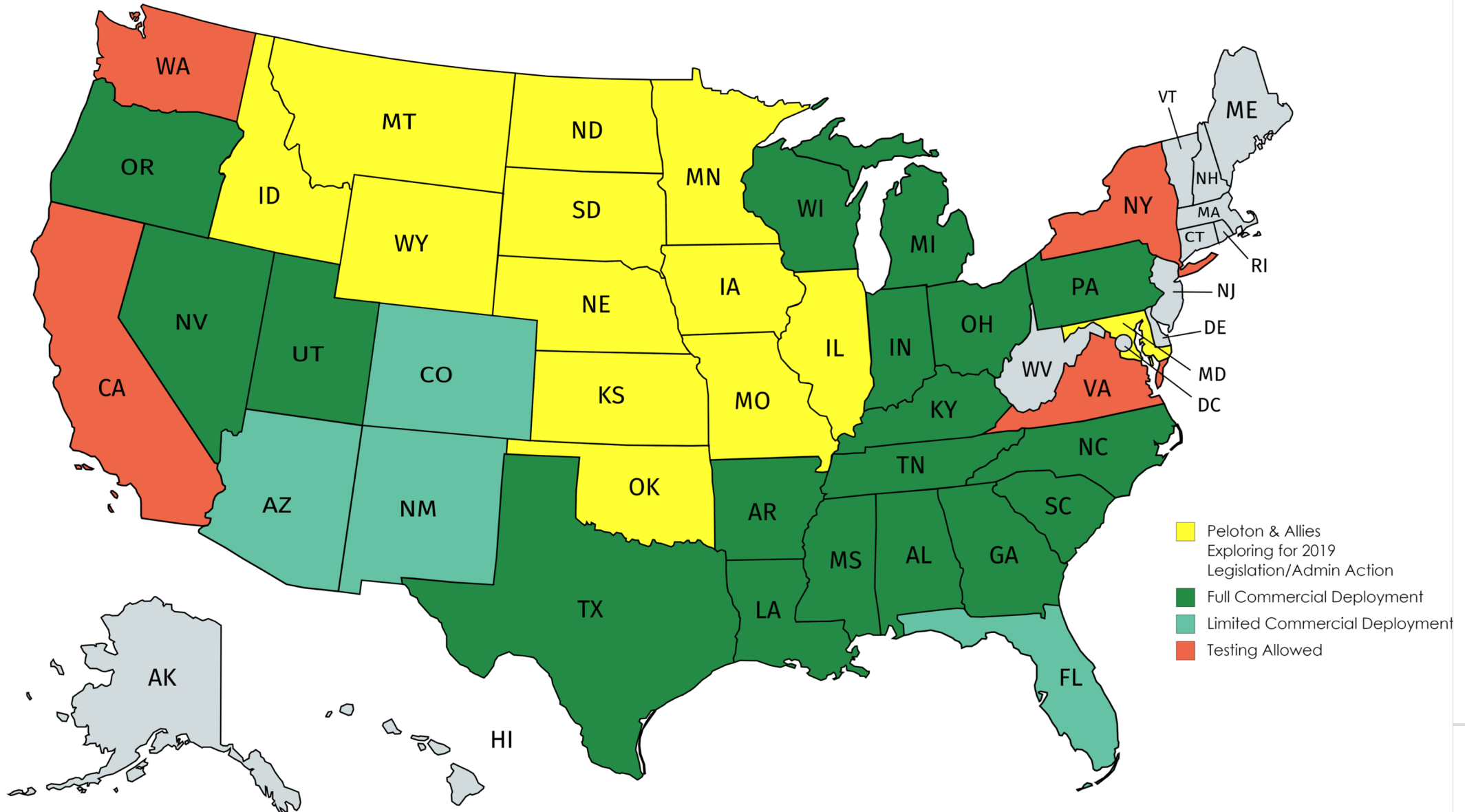
- A defined numeric minimum following distance in 24 states
- Platooning requires change in law

“Reasonable and Prudent” States

- A flexible, discretionary standard in 26 states
- Platooning can be legal under current law



National Context: State Platooning Laws



No New Infrastructure Required; Operations Can Adapt to Existing Infrastructure



FDOT-FHSMV-University of Florida Study (2018)

- **Highway Issues:**
 - Allow DATP operations on any limited access, multi-lane, divided highway.
 - Allow DATP operations on any lane currently allowable for trucks.
- **Infrastructure Effects**
 - FDOT analysis found that well **less than one percent of bridges** on interstate and turnpike mainlines **might be subject to stresses** exceeding bridge design specifications with trucks platooning at even a close 30 foot spacing.
 - The State can notify system providers and fleets regarding any locations/areas where platooning should be restricted, due to specific infrastructure elements or other factors.
- **Traffic Interactions**
 - At high market penetration, simulation studies have shown that platooning would **improve flow** in heavier traffic, since platooning trucks take up less road space than trucks traveling alone.
 - Other studies found significant **negative effects in congested traffic** at some interchanges (a situation in which platoons would likely dissolve, as the fuel economy benefits are minimal at lower speeds).
 - Traffic interactions during the recent Florida Platooning Pilot operational demonstration, which included interchanges, bridges, Service Plaza's, etc. **did not raise concerns**.

Outlook

Growing US and Global Activity using Driver Assistive Truck Platooning Solutions:

- **US:**
 - Peloton bringing driver-assistive truck platooning into commercial ops with selected fleets, 2018-2019
 - DTNA/Freightliner also indicates testing is ahead with some fleets in 2018
- **International:**
 - MAN Trucks and Scania beginning commercial test programs with fleets in Germany and Scandinavia.
 - EU Multi-brand platooning project: Platooning by the 6 European Truck OEMs, 2019-2020+.
 - Platooning commercial demonstration programs planned in UK, Australia, Asia.

Key Activity Ahead – Peloton Technology:

- Robust activity continues in California as Peloton continues joint work with OEMs.
- Commercial freight platooning activity over the coming months in Texas with major fleets.
- Activity expanding into other states over next quarters in coordination with major fleets.
- Ongoing work with allies to explore platooning allowance in additional states.

