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NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

Platooning and Autonomous Heavy Trucks

Mike Roeth, Executive Director, NACFE

CEC, July 16, 2020

NACFE

- Unbiased, non-profit
- Mission to double freight efficiency
- Scaling Available Technologies
- Guiding Future Change
- Run on Less Demonstrations

www.NACFE.org

www.runonless.com

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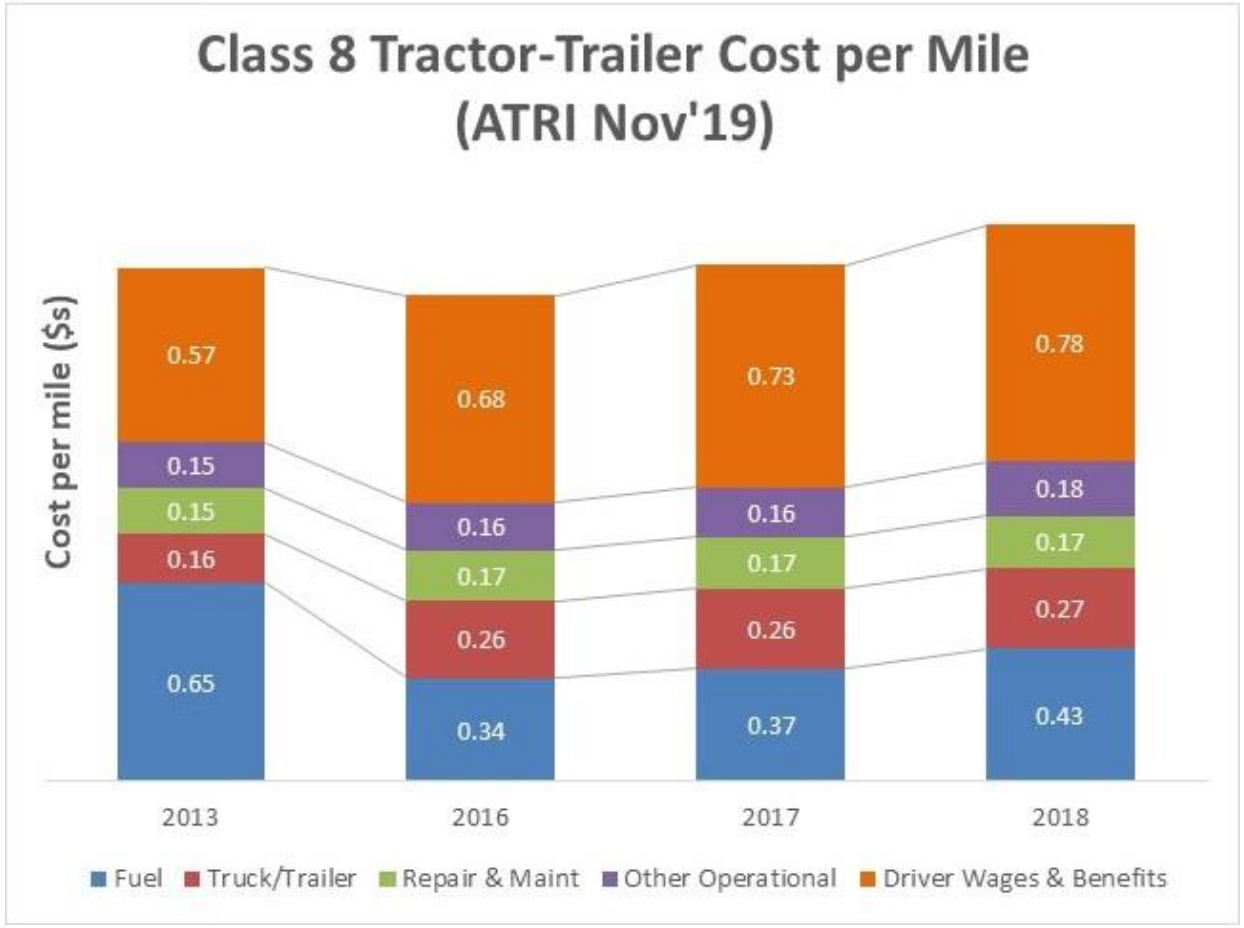
N.A. Fuel Situation



Why bother with saving fuel?

- Fuel cost
  - Fleets in the study reducing fuel use 2% per year.
- Future fuel costs
- Government Regulations – US Federal GHG, State & Local
- Corporate Sustainability

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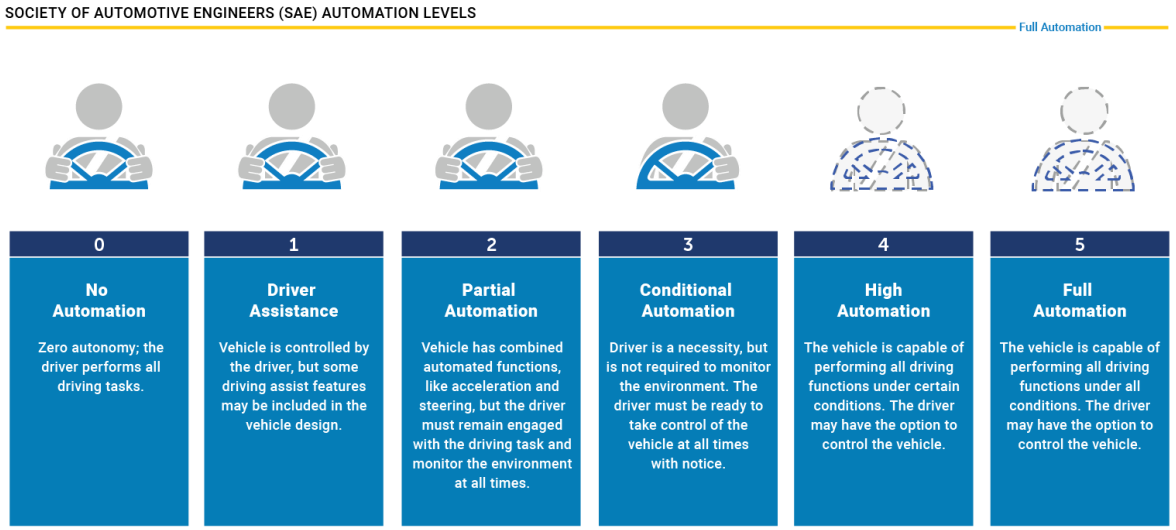
Two-Truck Platooning

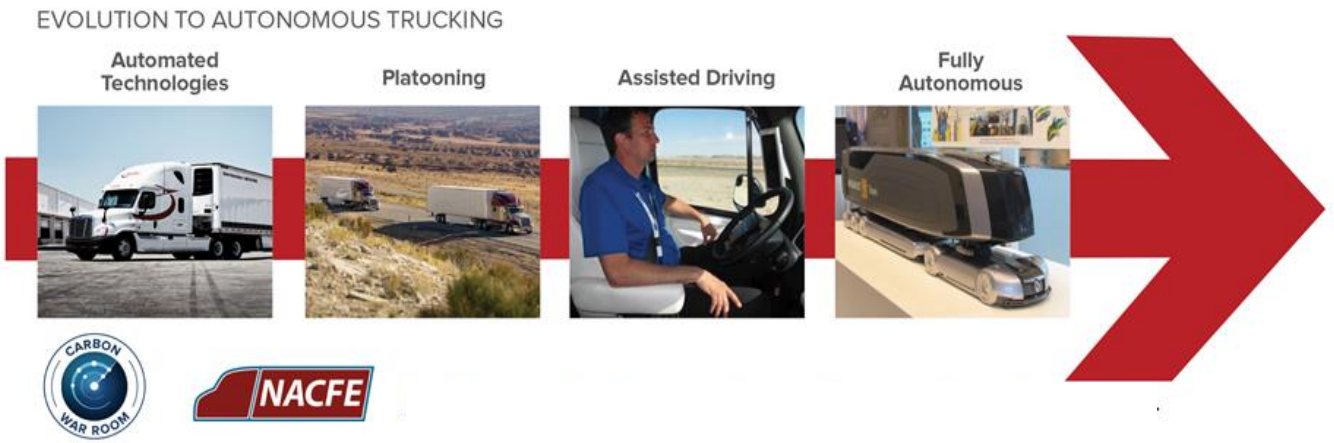
October 2016

CONFIDENCE REPORT:

Two-Truck Platooning

www.nacfe.org/technology/two-truck-platooning/





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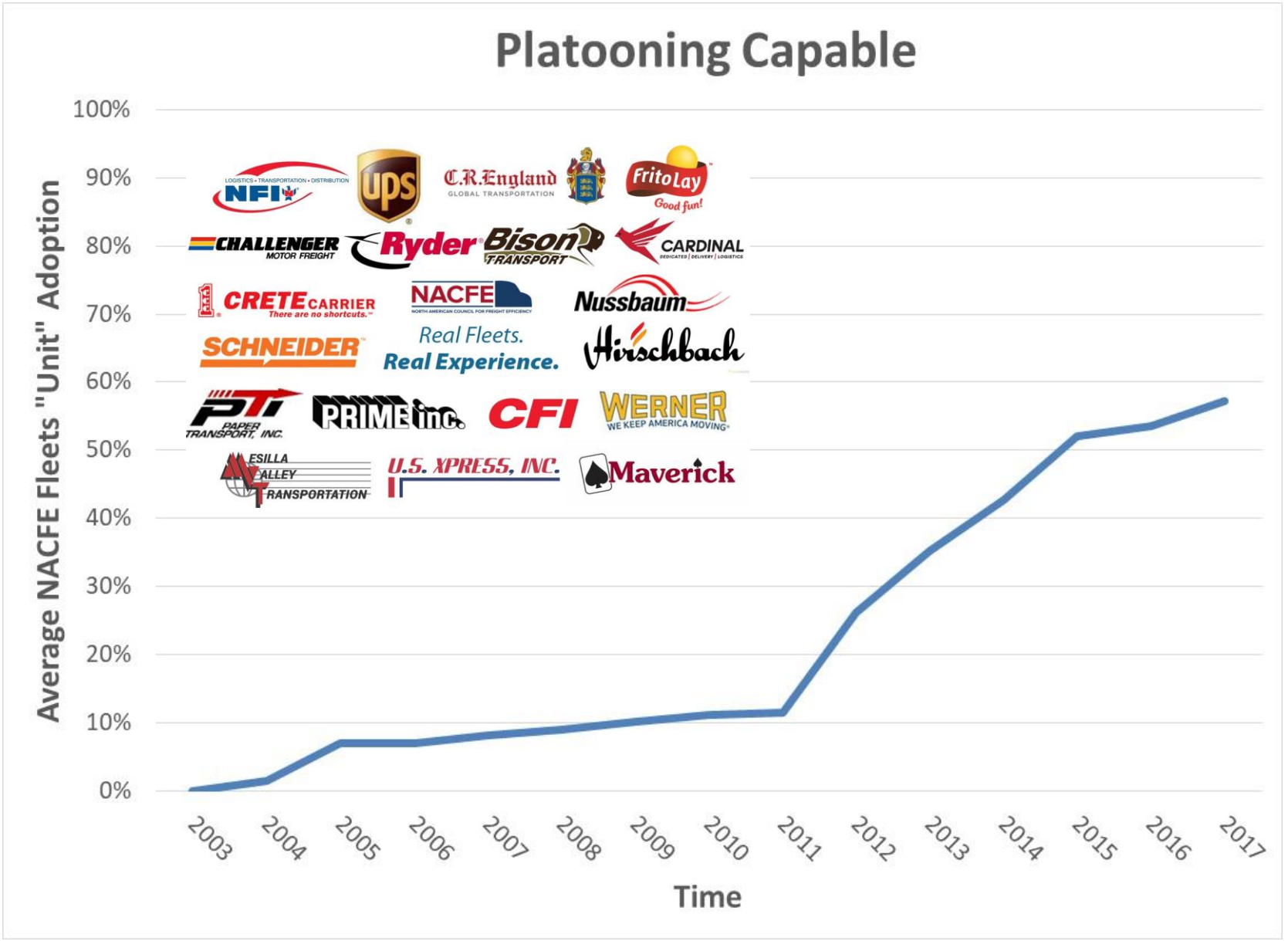
Safety Equipment Adoption



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Conclusions

- Valid/proven fuel-saving strategy for fleets ~ 4%.
- Bulk of required technology currently available
- Intervals not as close as widely believed ~ 50 ft.
- Minimal stress on drivers
- Begin as intra-fleet option
- Become inter-fleet option quickly
- Operational challenges

To Do:

1. Validate operation between different OEMs
2. Pass legislation to make platooning legal in more places
3. Logistics controls between fleets

Different Scenarios for Autonomy

"Autonomous Trucks and the Future of the American Trucker"

By Steve Viscelli September 2018

1. Cooperative Adaptive Cruise-Control Platooning
2. Human & Auto-Follower Platooning
3. Exit-to-Exit Autonomous Trucks
4. Drone Operation at Depot
5. Driver-in-the-Sleeper Scenario
6. Facility-to-Facility Autonomous Trucking

ATP: Autonomous Truck Port

https://gspp.berkeley.edu/centers/cepp/news-and-publications

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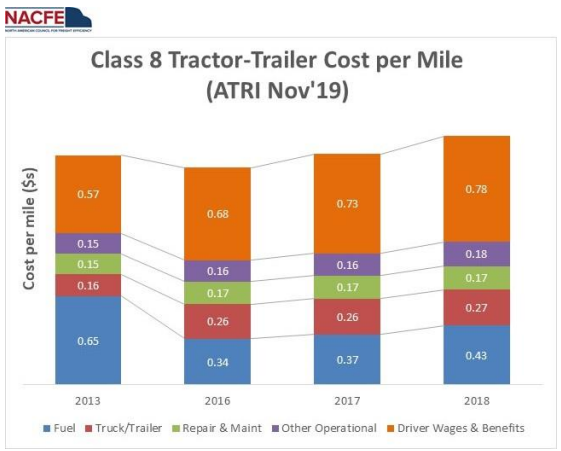
Benefits & Costs



	Safety Techs	Platooning	Assisted Driving	Auto-Follower	Self-Driving
Benefits	Less accidents & Repairs	Fuel	Enhanced Performance	Lower labor More payload	Labor and 24/7 operation
	Fuel	Higher Adoption of Safety Equip	Docking, parking & traffic jams	24/7 for trailer No cab, EV?	Cost, weight & complexity
Costs	Increasing upfront costs until vehicle redesigns with autonomous operation.			Labor savings for follower, no cab	No cab reduces tractor cost ~40%
	Maintenance increases with complexity and decreases with gentler operation.				

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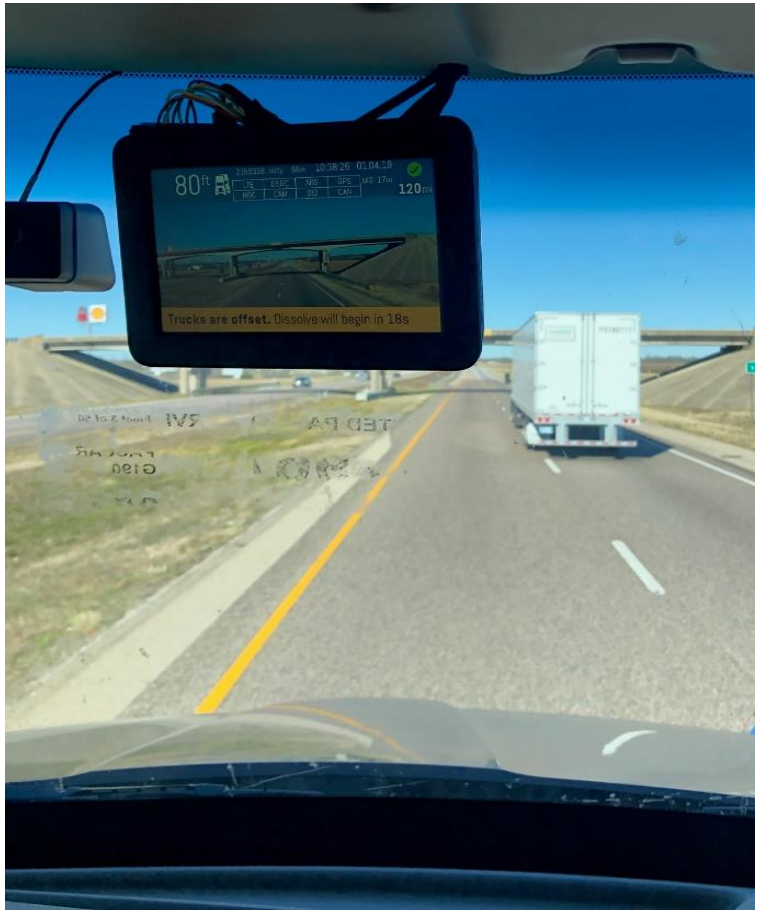
THANK YOU & QUESTIONS

Platooning in Operation



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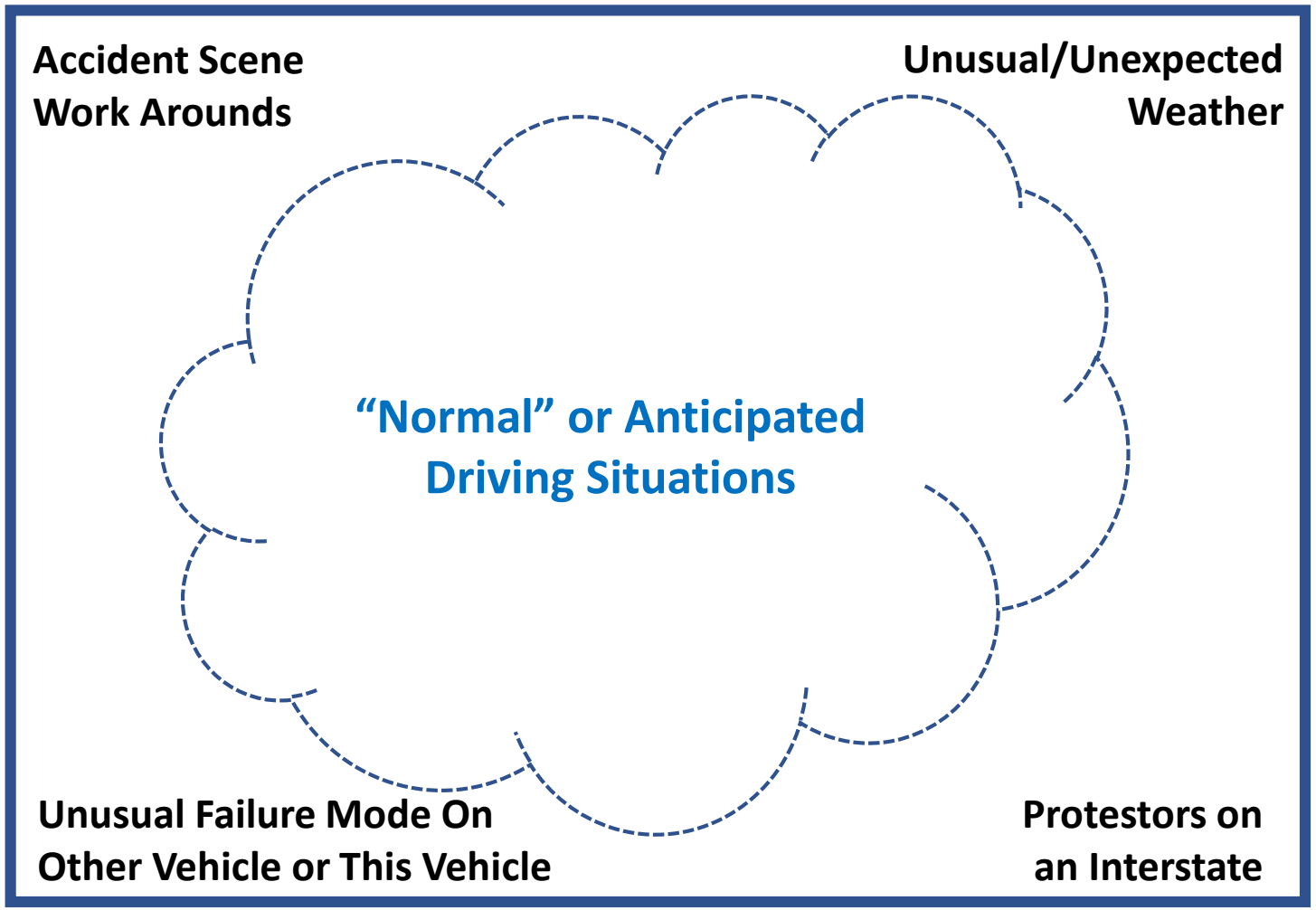
Autonomous Trucks & “Corner Cases”



Corner Cases are Typically The Development & Validation Challenge

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Corners for Confidence in Autonomy

	In Their Neighborhood	NOT In Their Neighborhood
Supports Consumers		
Limited to no Consumers	 	 Other Applications: Drayage, Private Tour Grounds, Airport Rental Car Shuttles…

Other Operational Features: Platooning, Parking, Docking, Yard tractors…

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Many New Companies in Truck Autonomy

tusimple

LOCOMATION

Outrider

Ike

And others…

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