





THE ROAD AHEAD

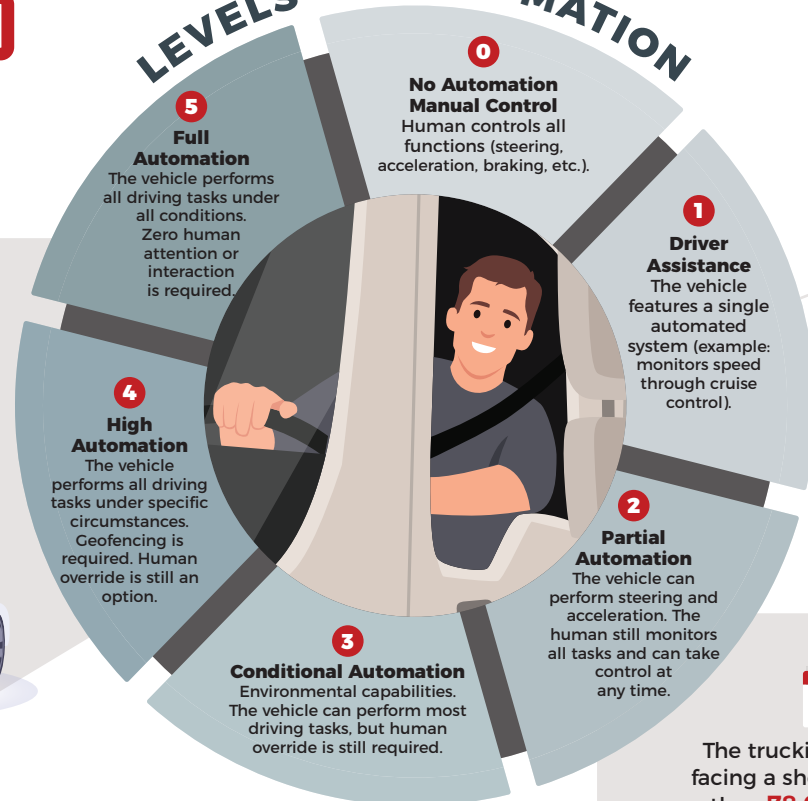
Advancements In Autonomous Vehicles And Continued Need For Truck Drivers

What is an Autonomous Vehicle

-  Autonomous vehicles (AVs) are vehicles that control their own operation and require reduced input or no input at all from a human driver.
-  AVs can be passenger cars, shuttles, buses, industrial vehicles, and commercial trucks.
-  Companies are working to develop AVs that require little or no human input to drive, and projections for the deployments will increase as state/federal governments adopt AV-friendly laws and regulations.
-  The quest for AVs has prompted a safety revolution and provided us with features in commercial trucks that help prevent crashes today.



LEVELS OF AUTOMATION



Many commercial trucks are considered Level 1

*Source: SAE



The trucking industry is facing a shortage of more than **78,000 TRUCK DRIVERS** plus needs to hire 1.2 million new drivers over the next decade.**



Meaning, there will be a need for **MORE TRUCK DRIVERS** over time, not less.



Professional drivers will be **KEY IN TESTING** and validating autonomous technology, with **ADDITIONAL JOBS** being created as the technology unfolds.



**Source American Trucking Association



Roadblocks to Adoption

- 1 Perception of the general population**
Remember, airplanes have been able to fly without pilots for decades, and yet we still have two pilots on every flight.
- 1 Developing regulations/legislation in state & federal government**
 - This includes pre-trip inspections, hours of service for drivers who are in trucks running in AV mode, and maintenance requirements.
 - Likely will not happen on a federal level within the next 5 years.
- 1 Cost of AVs**
Significant investment, with software development playing a large part, will be crucial for pushing AV technology forward and demonstrating safety.
- 1 Current inspection & roadside enforcement process must change**
How would an inspection take place at a scale/roadside or a crash scene with a driverless AV?
- 1 Liability and Legal**
 - New laws and new watchdogs to govern AV expansion will be required.
 - Who's liable in a crash: software company, the trucking company, the manufacturer of the truck, or all parties?
- 1 New insurance frameworks will be required**
 - An acceptable solution accepted by all parties and approved by state insurance regulations in all states must come to pass.

GROWTH IN TRUCKING TO COME

-  Overall truck tonnage is expected to increase from 11.3 billion tons in 2023 to **14.2 billion tons in 2034.** **
-  AVs will change the role of human drivers over time. Other career opportunities will emerge in the **mechanical, technical, and programming** fields.
-  Humans will still have roles in monitoring AV technology including **special jobs for technicians.**

