Putting the '**Auto**' in Autopilot:
Driverless Vehicles and Levels of Automation

WHAT ARE THEY?

A driverless, or autonomous, car is a vehicle capable of sensing its environment and operating without human involvement. There are five levels of driving automation.

0 **No Automation**
Manual control

1 **Driver Assistance**
Example: Cruise Control

2 **Partial Automation**
Vehicle can steer and accelerate

3 **Conditional Automation**
Environmental detection, but human override required

4 **High Automation**
Vehicle performs all tasks under specific circumstances

5 **Full Automation**
Vehicle performs all tasks under all circumstances*

WHAT WE HAVE NOW:

Current technology includes driver assistance technologies (Level 1 and 2) such as lane departure warnings and emergency braking.**

WHAT IS THE TIMELINE?

This is the big question on everyone's mind. **The time frame for Level 4 and 5 automation is uncertain.** We need more advanced technology, including better sensors and more reliable software. While there is no crystal ball, consider the following scenario:
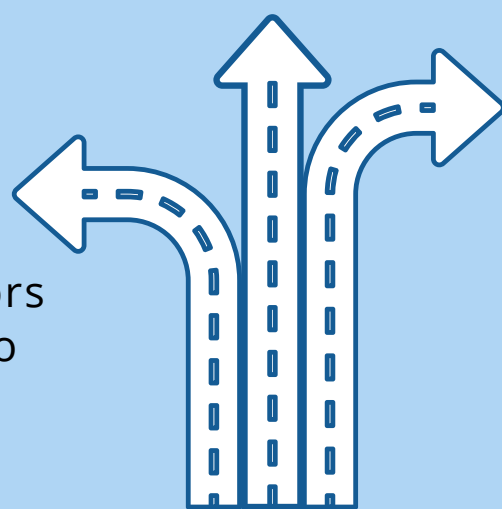
Current vehicles can last 20 years

U.S. replacement rate = 17 millions cars per year

Given this, if every vehicle sold beginning in 2018 had been driverless, it would be 2034 before all cars are driverless*

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Sources:
*What is an Autonomous Car? - https://www.synopsys.com/automotive/what-is-autonomous-car.html
**Driver Assistance Technologies - https://www.nhtsa.gov/equipment/driver-assistance-technologies
***Three Revolutions: Steering Automated, Shared and Electric Vehicles to a Better Future, Daniel Sperling, ed. (2018)