GHOST DRIVERS

The future of autonomous vehicles is already here.

BY JOHN EICHBERGER

In “Ghost Riders in the Sky,” Johnny Cash sings about a cowboy who, one night, saw in the sky a herd of demonic cattle being chased by “damned riders,” one of whom urged him to change his ways. If he didn’t, one day he too would join the riders “trying to catch the devil’s herd, across these endless skies.”

I believe that one day I will look around and see a similar scene play out relative to our transportation system, only it will come at the hands of technology.

One of the first serious discussions I had about the future of autonomous vehicles (AVs) took place at the 2014 Fuels Institute Annual Meeting. A former CEO of ZipCar suggested that autonomous technology could be used to reposition cars at pre-determined locations, moving them around a busy city in the middle of the night when the streets were less congested. Immediately, in my head I imagined poor drunkards stumbling home at 2 am, seeing a fleet of ghost cars rolling down the street, similar to the ghost riders haunting Johnny’s cowboy.

The idea of our vehicle fleet converting to autonomous driving technology can inspire these images of ghostly cars passing each other en route to retrieve a person who has hailed their vehicle using their mobile phone and GPS locator. Is this future coming? Some believe it is just around the corner.

Deployment

There is no doubt the technology to enable driverless transportation is being tested and utilized today. From deployment of Tesla’s autopilot to Uber’s experiment with autonomous vehicles in Pittsburgh, it seems as if the world is sprinting toward a driverless future. Many consumers anxiously await the day they don’t need to be responsible for the turn signal.

As the market begins its evolution to greater computer control, here are some thoughts to keep in mind:

Not all AVs are the same.

Some companies are working on technology that uses sensors to evaluate a car’s surroundings and make adjustments as necessary. Others are working on car-to-car communications, through which two enabled cars tell each other exactly what is happening—and about to happen—so they can accommodate the needs of one another. The sensor-based system can be deployed independently and relies upon the accuracy of the system, whereas the communications system requires all cars to be so-enabled.

The government has a significant voice.

The research that has led to the feasibility of AVs has already delivered to the market a number of life-saving vehicle features—lane departure warning, blind spot indicator, emergency autonomous breaking. More advanced features are being implemented throughout the market, but as technology enables the driver to remove hands from the steering wheel, regulations are sprinting to keep up.
Whether we are talking about alternative fuel or driverless vehicles, the date by when a new technology will represent a significant share of the market is a ways away.

sprinting to keep up. Federal and state rules governing the operation of AVs are still in their early stages, and the outcome of these deliberations will have as much to do with deployment as technological developments.

**Niche deployment might lead the way.** AVs could be deployed in a number of controlled environments, which could satisfy regulators’ concerns and provide additional proving grounds for perfecting the technology. Two very viable markets include:

1. Communities in which the elderly or disabled individuals who have lost their ability to drive their vehicle reside. Lower speed, limited range AVs could give these individuals the freedom of independent transportation.
2. Deploying driverless trucks to transport goods over very straight, predictable highways is believed to be a very feasible use of AVs. These vehicles would then meet with drivers for last mile delivery through more congested markets.

The government is fully invested in helping AVs hit the roads—but why?

**Safety**

The overwhelming motivation for deploying AVs is safety. In an age when everyone is attached to their mobile devices, distracted driving has entered a whole new level of dangerous. When I was growing up, the primary concern was friends in the car, loud stereos and drive-thru burgers. Now, add texting, social media and entertainment streaming from a handheld device — all of which combine to take the driver’s eyes off the road.

According to the National Highway Traffic Safety Administration (NHTSA), our roads are getting less safe. During the first half of 2016, traffic fatalities were estimated at 17,775, compared with 16,100 during the first half of 2015—an increase of 10.4%. During the same period, passenger deaths per every 100 million vehicle miles traveled increased from 1.05 to 1.12.

The government’s interest in autonomous technology is to deliver a safer transportation system. While the 2016 statistics are better than earlier in the century, the numbers remain too high. Many believe AVs will yield a safer system.

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(Source: NHTSA, Traffic Safety Facts, October 2016)
Power
What kind of powertrains will likely prevail in an autonomous fleet? While it is possible for an autonomous vehicle to be fueled by an internal combustion engine, it is more likely that the technology will be paired with an electric drive powertrain, and there are a number of practical reasons for this. For one, the immediate response necessary to enable effective autonomous driving is most efficiently delivered via electric drive, which provides immediate, full power without any delay.

Another reason is energy supply. A driverless car may need to “refuel” between trips. Fueling with a hazardous liquid fuel will be more complicated than parking above a pre-determined inductive charging pad. And ultimately, futuristic drive modes paired to 100-year-old powertrain technology may not appeal to the masses—hence, pairing with electric drive might make the most sense from a marketing standpoint.

Outlook
Autonomous travel is upon us and it is expanding rapidly. The vehicle fleet does not turn over quickly, however, so whether we are talking about alternative fuel or driverless vehicles, the date by when a new technology will represent a significant share of the market is quite a ways away. That said, the number of entities investing in developing, testing and deploying these technologies—including the federal government—is significant.

It is highly unlikely that we will see a dominant fleet of ghost cars on the roads in the next five to ten years, but it is quite possible that driverless vehicles will begin to share our roads. Johnny’s cowboy may have seen demons on horses in the sky, but I fear someday I will see a nightmare come true: I will pull up to a stoplight, look around and realize I am the only human “driving” my car.

Our love affair with the automobile is dying and giving way to “modes of transportation.” We may inherit a safer system, but what will we have lost?

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