Establishing safety guidelines for self-driving cars is not easy

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Google, Tesla and Uber are in a race: they're spending millions to make cars that drive themselves.

But they still need to show that driverless cars aren’t dangerous technology.

Some carmakers talk like these robotic vehicles are safer than they really are, said Nidhi Kalra, a senior information scientist at RAND Corp. It is a group that does research. "It’s like putting a teenage driver on the road," Kalra said.

In the world of robotic cars, safety is complicated. First, the government has to come up with a definition of “safe.” That could mean the machines must drive perfectly. It could also simply mean that they break fewer laws and get into fewer accidents than human drivers do.
There Are Many Issues Surrounding Self-Driving Cars

Then there are more things to consider. One is that companies are developing many different kinds of programming. For example, some cars only help drivers with braking, parking and lane-changing. Other robotic cars will have full control to drive. However, this is still several years away.

No single test can say a self-driving car is safe, says Steven Shladover. He is an engineer at University of California, Berkeley.

More research is needed before putting these cars in traffic, Shladover says.

The U.S. Department of Transportation is in charge of car safety. It has given carmakers some advice to help them build safer self-driving vehicles. But there is no law about the use of self-driving vehicles and driver-assisted technology right now.

Allowing More Driverless Cars On Public Roads

The U.S. government could stand back and allow companies to put more self-driving cars on public roads. That way, they could collect the necessary safety information, says Alain Kornhauser. He oversees a team of vehicle engineers at Princeton University.

Kornhauser and some other experts say that these vehicles could help lower mistakes that humans make. That will make cars safer. There were 38,300 deaths and 4.4 million serious injuries on U.S. roads in 2015 alone. It would be worth the risk to let self-driving cars roam more freely and “learn” faster, Kornhauser says.

Testing cars on public roads "is essential both to gain public trust," says Chelsea Kohler, a spokesperson for Uber. It also helps "improve the technology over time," she says. Uber is similar to a taxi service, where people use smartphones to request a car to drive them places. Eventually, Uber wants to put self-driving cars on the road.

Testing Can Be Dangerous And Lengthy

The dangers of this real-world testing became apparent last May. A Tesla Sedan S was using its Autopilot technology when it hit the side of a large truck ahead. The driver died in the accident.

Another big challenge for carmakers is figuring out how long self-driving vehicles must be tested before they are really safe. A report from the RAND Corp. suggests that cars might need to drive hundreds of hundreds of billions of miles to learn about driving.

It might take hundreds of years for the existing self-driving cars to drive this much. A fleet of 100 cars would have to drive 275 million miles without a mistake. It would take around 12.5 years of driving all day at 25 miles per hour. And this is just to meet the safety standards of today’s vehicles.
Testing could be improved if tech companies and carmakers shared their findings with each other, says Sebastian Thrun. He’s a self-driving car pioneer. He used to work at Google. Not surprisingly, companies do not want to share this information. They want to keep their practices secret. They do not want to share secrets with their competition.

**Humans Must Be Supportive Of Driverless Cars**

However we define "safety," humans need to be convinced that driverless vehicles are a good thing.

Brian Lathrop researches electronics at the car company Volkswagen Group of America. He says robotic cars must let other drivers know when a vehicle is in self-driving mode. A robotic vehicle should let its own driver know what it plans to do. It must allow control to the person in the driver’s seat, Lathrop says.

It is scary to think about human drivers sharing the road with robotic vehicles that have different capabilities, Lathrop says. It will eventually happen.

When it does, the technology will have to earn our trust — just like a teenager with a brand-new driver’s license.
Quiz

1 Based on information in the article, which of these statements is TRUE?

(A) There are many laws that regulate how to test driverless cars.

(B) Driverless cars have been proven to be more safe than human drivers.

(C) It is obvious how to test the safety of driverless cars.

(D) It is not clear how to test the safety of driverless cars.

2 Select the sentence from the section "Humans Must Be Supportive Of Driverless Cars" that shows a way driverless cars can improve.

(A) However we define “safety,” humans need to be convinced that driverless vehicles are a good thing.

(B) Brian Lathrop researches electronics at the car company Volkswagen Group of America.

(C) A robotic vehicle should let its own driver know what it plans to do.

(D) It is scary to think about human drivers sharing the road with robotic vehicles that have different capabilities, Lathrop says.

3 According to the article, how can driverless cars become safer?

(A) by sharing information they learn from other driverless cars

(B) through training by human drivers to drive more like people

(C) by making mistakes so that the bad cars are taken off the road

(D) through testing for many miles in laboratories

4 What is the relationship between driverless car companies and the government?

(A) The government tells companies exactly how to test driverless technology.

(B) The government gives companies no advice or guidelines about how to test driverless cars.

(C) The government gives companies strict guidelines; there are many laws about how to test driverless cars.

(D) The government gives companies some guidelines, but there are no clear rules about how to test driverless cars.
Answer Key

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