Driving Toward the Future

Think automated robot-driven cars are decades away? Think again. They're being tested right now and could be on the road by decade's end. With them comes a list of potential liability and insurance issues you need to consider.

By Scott Martelle

Imagine you pull up to a four-way stop in your car around the same time as another driver, you both proceed into the intersection, and *crunch*, fenders are bent.

Then you learn the other driver wasn't really driving. In fact, no human was controlling the car – it was a computer-managed "autonomous car," driving itself.

So, who's at fault, man or machine?

Next, consider this future-shock scenario: You've had one too many scotches at that meeting. Can you slip behind the wheel of your autonomous car and tell it, "take me home," without breaking drunk-driving laws?

What once was considered science fiction is quietly becoming reality as designers press forward with prototypes of motor vehicles that use censors, computers and, in some designs, vehicle-to-vehicle communications to navigate streets and highways. That cutting-edge technology has spawned some cutting-edge legal issues over everything from liability to privacy.

This isn't far-in-the-future stuff. Google engineers have been test-driving – or test-riding – autonomous vehicles near the online giant's home base in Mountain View, and the federal National Highway Safety and Transportation Administration in August will begin trials on wirelessly connected autonomous cars near Ann Arbor, Michigan.

Yet the only state to adopt laws on such vehicles is Nevada, which last year gave its state Department of Motor Vehicles authority to start registering the cars – red license plates for experimental models, green plates for those sold to the public. It also required the vehicles include the capability for drivers to take over controls, and that each car be programmed to safely park itself on the side of the road should it encounter programming problems and the operator does not take control.

But the regulations do not lay out groundwork for the stickier liability and privacy issues. In early March, California state Senator Alex Padilla introduced legislation worked out with Google that is similar to Nevada's law. Legislatures in Florida, Hawaii and Arizona also are contemplating bills.

"Technology is way ahead of the law," says Dorothy Glancy, a law professor at Santa Clara University with a long history in public transportation and privacy issues. "Looking at it now, we have to think about what the future is going to be in terms of technology and privacy interests. Looking 20 or 30 years into the future, it gets to be interesting to look at the combinations and permutations of possibility."

Addressing the legal issues – especially civil liability – could be crucial to developing autonomous cars for a consumer market, says Gary E. Marchant, the Lincoln Professor of Emerging Technologies, Law & Ethics at Arizona State University's Sandra Day O'Connor College of Law.

General Motors has had the capability for years to develop an autonomous car but didn't take steps to put them on the road, in part over liability fears, says Marchant, who formerly did legal work for the automaker in Washington, D.C. If technology shifts responsibility from the driver to the manufacturer, the liability costs become a disincentive to development of what could otherwise be a boon to society by removing driver error from the list of accident causes.

"Right now the vast majority of car accidents are caused by the driver, so the number of cases in which the manufacturer is liable is a pretty small slice of the total pie," Marchant says. "As we go to autonomous vehicles, the actual number of accidents should go down dramatically but the percentage formed by the manufacturers getting sued will likely go up. So you have the paradox that the vehicles on the whole will be safer, but from a manufacturer's standpoint, the risk of liability goes up."

Similar concerns confronted pharmaceutical companies developing vaccines, which have a broad societal gain in reducing illness. That conundrum gave rise to the National Vaccine Injury Compensation Program to deal with claims arising from a range of vaccines, and giving the manufacturers some protection. "You don't want to get rid of" manufacturer's liability altogether, Marchant says, but you also don't want to make exposure a disincentive to manufacturing products that have a broader societal value.

Legal minds have been rolling around some ideas about all of this. The Santa Clara Law Review's annual symposium in January drew legal scholars from around the country to discuss regulations (from the local to the federal level), insurance coverage, civil and criminal liability, and even communications law, since one iteration of autonomous vehicles being tested by the federal government would rely on wireless communication.


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No one set of technologies has taken hold, but two leaders have emerged. One is the automated cars being developed at Google, which are self-contained computer systems that navigate based on programming and conditions detected by sensors. The other, which the NHTSA has been experimenting with, involves computer-managed cars that communicate with each other.

The issues raised by the advent of such cars range from thorny constitutional questions to the bureaucratic. Robert Peterson, an expert in insurance law at Santa Clara, points out that California's Proposition 103, adopted in 1988, requires insurers set rates based on the insured person's driving history – something that gets warped when the machine is doing the driving.

Similarly, manufacturers of the autonomous cars – and the computerized systems driving them – may face a new generation of liability issues, which could lead to some unusual solutions, such as having the manufacturer provide the insurance for the vehicle (the cost likely rolled into the sticker price).

"No one has squarely addressed that, but the Nevada regulations say that the operator, the person who pushes start, is responsible," Peterson says, which could be interpreted "that as far as tort liability is concerned, you are now strictly liable even though there's no fault on your part." It could evolve that the standard liability would fall to the operator regardless of the accident cause, and if it was a programming malfunction, the operator could try to shift the liability to the manufacturer.

Adding insurance to the upfront cost of the vehicle "would be a solution, but it means merging private car insurance with car manufacturers, and there are a lot of practical and legal barriers to doing that," Marchant says, adding that such solutions will require a re-imagining that "could mean a fundamental change in how we do insurance."

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Criminal liability poses its own related set of questions, says Frank Douma, of the Humphrey School of Public Affairs at the University of Minnesota. If a car is programmed to move at a certain speed, but fails to detect a slower posted speed when it pulls from a freeway to city street, does the motorist get a ticket? What if the car is programmed to travel at the safest speed, which on a California freeway could be above the posted limit? Is the driver responsible for the infraction?

"It makes what seems to be some simple thoughts about traffic enforcement and other criminal liability situations much more complicated," says Douma.

A second level of issues lies in the interactions with law enforcement. How does a traffic cop pull over an autonomous car? A car programmed to obey traffic signals and respond to external threats such as suddenly slowed traffic is one thing; getting it to respond to flashing lights to the rear and a siren is another.

Douma suggests systems could be designed that would empower police to override a car's computer system externally, directing it to pull over.

"The advantage in allowing that is the doomsday scenario, where somebody could put high explosives in a car and send it along its merry way," Douma says. "But if that's found out and law enforcement has the power to take over, they can prevent those things from happening."

Kidnapping also poses an interesting scenario, if someone can hijack the computer controls and force a car – and rider – to go somewhere unanticipated. "There are a number of those kinds of tricky things that you don't think about," Douma says.

Yet giving police the ability to remotely pull over cars runs into Fourth Amendment problems, he and Glancy say. Also, in the vehicle-to-vehicle technology in which the cars communicate with each other, records could be kept that would make it easy to track a driver's movements, which most consumers would view as a violation of privacy.

"Once you start sending information out of the car, security and the privacy of the information becomes a matter of concern," Glancy says, adding that in conversations with people she finds a lot of skepticism about how well-protected that privacy might be. "They usually talk about fears of massive government surveillance, but also are concerned about" information on their shopping travels being shared with marketing companies. "What stores they're going to, what stores they go by, that information is so valuable for marketing firms."

Staking out the legal parameters now and then adapting them as the cars go into use makes more sense, the experts say, than waiting for the technology to take root first then trying to figure out how to deal with the legal issues after the fact.

"It's going to be with us whether we think about these issues or not," Glancy says. "To think about the legal issues in advance – that's a really good thing." ■

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