

5 new technologies to make driving easier

Consumers who haven't shopped for a new car for a few years may encounter some exotic new safety advances.

By [MSN Money partner](#) 22 hours ago

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By [Joseph B. White, The Wall Street Journal](#)

There's a technology revolution in the auto business, and it involves more than streaming radio apps and voice-activated Facebook ([FB +1.52%](#)) updates.

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Consumers who haven't shopped for a new car for five or more years -- and that's a lot of people, since the average U.S. vehicle has been on the road for just over a decade -- may encounter some exotic new advances.

To attract safety-conscious drivers, some carmakers are revisiting the question, "Is there anywhere else we can stash an air bag?" Night-vision systems similar to those the military uses to spot enemies in the dark are

appearing at the upper reaches of the luxury market. And to meet tougher fuel-economy standards, carmakers are installing transmissions with up to nine speeds.

At this point, only a few customers might order such novel features. But what starts out as a costly, brand-burnishing option in a luxury sedan often migrates into wider use, as technology prices invariably drop. Here's a sample of new technology hitting showrooms this year.

Click an inflatable seat belt

Automakers and safety-technology suppliers such as Sweden's [Autoliv \(ALV -0.60%\)](#) have developed shoulder straps with air bags built in. In the U.S., [Ford Motor \(F +0.65%\)](#) was the first to offer this bag-in-belt technology on 2011 Explorers. Now, Mercedes-Benz will offer it on its new S-Class sedans.

Although traditional lap and shoulder belts prevent thousands of deaths a year, they can also cause what researchers call "seat-belt syndrome."

The belts can lead to severe injuries to organs, muscles and spines, especially in violent crashes. Inflatable seat belts are meant to reduce this risk. Traditional air-bag systems mounted in the car's steering wheel and elsewhere use a hot gas to inflate the bag rapidly during a crash. To prevent burns, bag-in-belt systems use a cold gas to inflate its protective bladder.

Ford says it currently offers bag-in-belt systems on four models -- the Explorer, the Flex wagon, the Lincoln MKT sport utility and the Lincoln MKZ sedan. About 25% of people who buy those vehicles order the bag-in-belt option, Ford says. Mercedes says it will likely move the technology into other models, but the company isn't outlining specific plans.

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Spot pedestrians in the dark

Safety regulators around the world are increasingly focused on motor-vehicle accidents involving pedestrians, and that's spurring development of new systems to help drivers see people on foot before it's too late.

More than 4,000 pedestrians a year die in the U.S. after being hit by a car. Nearly 70,000 were injured in motor-vehicle accidents in 2011, according to government data. Many of these incidents happen at night.

This year, German luxury brand **BMW** is launching a "dynamic-spotlight" technology that uses an infrared camera mounted behind the grille to see down the road ahead. Software can pick out the outline of a person (or animal) and signal the car's headlights to illuminate them – and help prevent a collision.

The system also shows an in-cabin alert, projecting an icon representing a person enclosed in a yellow triangle onto either a dashboard screen or the windshield.

Design your own dashboard

Dashboards used to be static displays with mechanical dials and gauges. Now, automakers are ditching the dials in favor of programmable screens that can display more information and allow drivers to personalize the look of the cockpit displays.

The new Lexus IS F-Sport model, due out this June, uses a thin-film transistor display and a moving tachometer dial (which measures RPMs) to create a hybrid of the traditional and the new. The technology is adapted from Lexus's super sports car, the LFA.

By toggling a control on the steering wheel, the driver can get the big dial in the center of the dashboard to move to the right, revealing a flat-screen display that can be customized for two different drivers.

"We can change languages, miles per hour to kilometers" and show information such as route guidance, says Bill Camp of Lexus's training operation, Lexus University.

Shift into ninth gear

Ever-tougher federal demands for fuel efficiency have led carmakers to add more gears to transmissions. And more. And more.

You don't have to be very old to remember when most cars came with four-speed transmissions. Now, **Chrysler** says it will introduce a nine-speed gearbox designed to fit into a relatively small, front-wheel-drive car.

ZF Friedrichshafen, the German company that makes the nine-speed transmission, says it can improve fuel economy by 10% to 16% compared with a six-speed automatic, mainly because it offers a wider spread of gears to keep the engine in the "sweet spot," where it's turning as slowly as possible to stay at a certain speed.

Such a transmission's challenge lies largely in the software that controls the vehicle's shifting. Too much and drivers could feel as if the car is constantly changing gear and not running smoothly. Too little and the fuel-economy benefits don't materialize.

Michael Ebenhoch, the director of ZF's front-drive transmission development, says that with nine speeds, "we are getting closer to the maximum" for a passenger car. On the other hand, he says, "the guy who developed the five-speed said we don't need six."

Drive by computer

Traditionally, steering a car has involved a series of mechanical connections that allow the wheel in your hands to guide the four wheels on the road. Infiniti's new Q50 sedan – which replaces the current G series in the **Nissan Motor** luxury brand's lineup – boasts the industry's first so-called steer-by-wire system, which swaps out those mechanical elements with an all-electronic system.

Proponents say an electronic signal can be faster than a mechanical linkage at translating what the driver does with the steering wheel to the road. The electronic system also allows drivers to choose among four different degrees of serenity or sportiness in the handling. If the electronics fail, Infiniti says a backup mechanical-linkage system will keep the car under control.

The steer-by-wire system is part of an array of technology on board the Q50, including advanced cruise control and radar-enabled braking, that allows the driver to take control when the road is fun and twisty, but also enables the car to handle a lot of driving work itself during a routine commute.