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What's driving the connected car

New technologies are transforming the automotive sector, with major implications for industry players and consumers alike.

Today's car has the computing power of 20 personal computers, features about 100 million lines of programming code, and processes up to 25 gigabytes of data an hour. Yet while automotive digital technology has traditionally focused on optimizing the vehicle's internal functions, attention is now turning to developing the car's ability to connect with the outside world and enhance the in-car experience. This is the *connected car*—a vehicle able to optimize its own operation and maintenance as well as the convenience and comfort of passengers using onboard sensors and Internet connectivity.

We estimate that while the total cost of ownership of vehicles will remain stable for consumers, the dramatic increase in vehicle connectivity will increase the value of the global market for connectivity components and services to €170 billion by 2020 from just €30 billion today. While technological advances have driven the automotive sector for decades, this dramatic acceleration as a result of connectivity has the potential to significantly alter the competitive landscape. Companies from the software and telecommunications sectors are already entering the automotive market, and a new McKinsey report finds that original-equipment manufacturers need to act now to secure control over critical industry sectors.

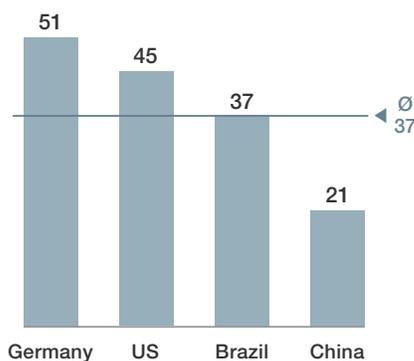
At the same time, players must adapt to changing consumer needs. We interviewed industry players and surveyed almost 2,000 new-car buyers from Brazil, China, Germany, and the United States for our report. Among our findings: 13 percent of buyers are no longer prepared to even consider a new vehicle without Internet access, and more than a quarter already prioritize connectivity over features such as engine power and fuel efficiency.

Yet while drivers are eager for the benefits of car connectivity, they also express concerns that may hamper its rapid and broad adoption. First, consumers worry about digital safety and data privacy (exhibit). An average of 37 percent of respondents would not even consider a connected car, although there were major regional differences. That regional variation was lower, however, when

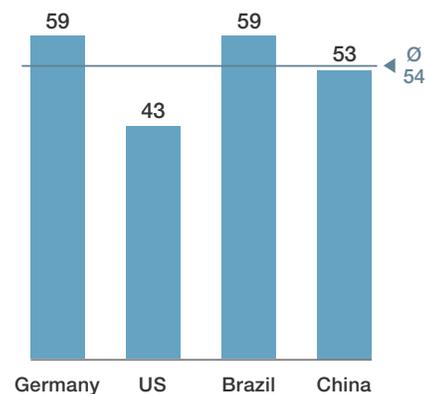
Exhibit New-car buyers are broadly concerned about data privacy and the possibility of hacking when it comes to car connectivity.

% of new-car buyers that (strongly) agree with the statement

I am reluctant to use car-related connected services because I want to keep my privacy



I am afraid that people can hack into my car and manipulate it (eg, the braking system) if the car is connected to the Internet



Source: McKinsey's Connected Car Consumer Survey, 2014

it came to fears about vehicles being hacked, where significant concerns were evident in all markets. Second, consumers indicated limited willingness to pay for car connectivity features. For instance, only 35 percent of new-car buyers said they would spend an additional \$100 for smartphone integration, and just 21 percent said they would be willing to pay for subscription-based connectivity services.

The fact that consumers demand connectivity, have security concerns regarding it, and are only marginally willing to pay for it leaves industry players in an interesting position. Even as the trajectory of the technology-enabled car points toward ever-greater connectivity, companies will face both tough and delicate decisions in the years ahead. □

This article is adapted from *Connected car, automotive value chain unbound*, a new McKinsey study that details the impact of digital technology on the automotive sector. For more information, visit McKinsey's Automotive & Assembly site, on mckinsey.com.

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