

McKinsey Center for Future Mobility

ACES 2019 survey: Can established auto manufacturers meet customer expectations for ACES?

Consumers believe that established automakers are well positioned to capitalize on ACES trends. Will they reach their full potential in a challenging market?

by Kersten Heineke, Daniel Holland-Letz, Matthias Kässer, Benedikt Kloss, and Thibaut Müller



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Four disruptions—**A**utonomous driving, **C**onected cars, **E**lectrified vehicles, and **S**hared mobility—have become the hottest topics in the automotive industry in recent years. McKinsey's 2019 ACES survey, which examined consumer mobility preferences worldwide, revealed that customers believe traditional OEMs are well qualified to drive innovation in these areas. That finding marks a big departure from previous surveys, where consumers stated that established OEMs lagged behind their Asian counterparts and start-ups in pursuing ACES trends.

Can established automakers truly gain the upper hand in the game of ACES? To answer this question, we took a close look at the 2019 survey results, including country-specific findings. Our analysis revealed that traditional OEMs are well positioned to become leaders in ACES because consumers have faith in their capabilities, particularly in Western markets. But all companies, including traditional OEMs, may encounter several challenges that could limit their gains from ACES.

The ACES survey

McKinsey's 2019 ACES survey highlighted the urgency and importance of pursuing ACES trends. It involved more than 7,000 respondents in seven countries (China, France, Germany, India, Japan, the United Kingdom, and the United States) (Exhibit 1).¹ These locations account for approximately two-thirds of annual global new car sales.

Our survey included more than 70 questions about ACES trends. It was designed to allow numerous data cuts, including those for city type, gender, age, level of education, and income.

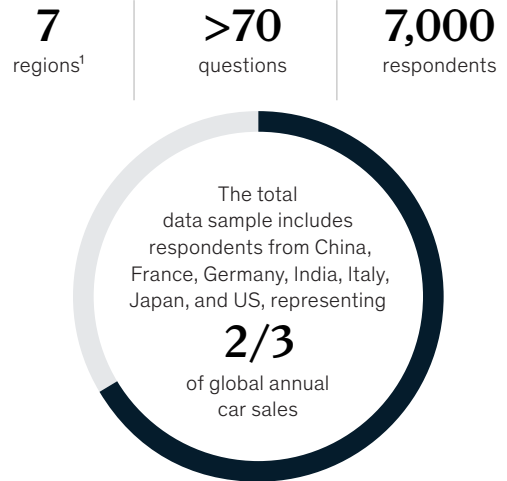
Customers trust traditional OEMs to succeed in ACES

In our 2018 survey, younger Chinese consumers were the most enthusiastic about ACES trends. This year, the survey revealed that Western customers are now more willing to explore ACES

Exhibit 1

The 2019 ACES Consumer Survey examined consumer attitudes about major mobility trends.

ACES survey breakdown



¹Prior to 2019, the survey only included China, Germany, and US.

than in the past. Western customers also expressed a higher degree of trust that OEMs could deliver ACES capabilities.

Across countries, consumers valued safety more than any other vehicle feature, with 53 percent of respondents citing a desire for higher safety standards as their primary reason for wanting to replace an old car. A desire for a lower total cost of ownership came in second. Vehicle performance and design carried the least weight in the decision to purchase a new car—a finding that might force OEMs to focus on other differentiating features in the future.

Our survey results suggest that established OEMs may have an advantage as ACES trends accelerate because customers view them favorably. For instance, 66 percent of respondents stated that

¹ McKinsey has been conducting the ACES survey since 2014. In past years, it included about 3,000 respondents in China, Germany, and the United States.

established OEMs are the most likely to bring fully mature—and therefore safe—autonomous vehicles (AVs) to market. There was little variation across countries in this sentiment. Other important findings that suggest OEMs may have an advantage with ACES include the following:

- **Autonomous driving.** Customer perceptions will help established OEMs over the long run, especially in Europe and the United States. For example, 43 percent of German consumers stated that they would prefer to buy an AV from their traditional premium OEMs, which was much higher than the 25 percent who wanted to purchase from companies that specialized in self-driving cars and the 10 percent who wanted to buy from those associated with high-tech giants. The main regional difference can be seen in Japan, where only 6 percent of respondents stated that they trusted specialist self-driving companies but 80 percent trusted traditional

OEMs. Americans were half as likely as Chinese or Indian respondents to state that they would trade in their cars for an AV. This finding means that some of the established OEMs, which are currently lagging behind in developing autonomous-driving technology, might have time to catch up and change customer perceptions before AVs become more common. This trust advantage for traditional OEMs is also present in China and India, albeit to a lesser extent.

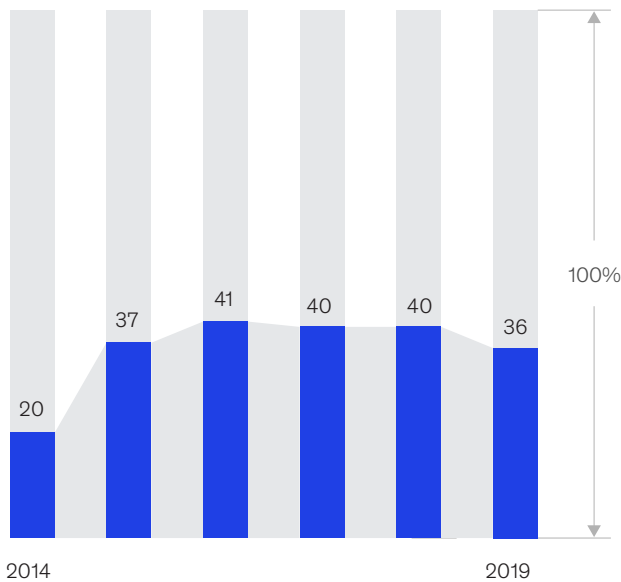
- **Connectivity.** Consumers in the United States typically prioritize connectivity less than those in Asia. While most Chinese consumers (61 percent) stated that they would switch car brands to achieve better connectivity, only 18 percent of Germans would (Exhibit 2). The number of Americans and French willing to make the switch for better connectivity was also relatively low (28 percent in both markets).

Exhibit 2

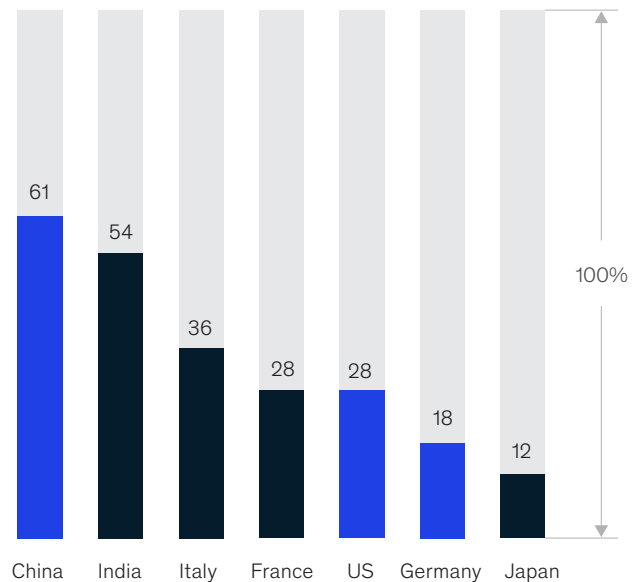
The percentage of consumers willing to switch car brands to obtain better connectivity varies by country.

Willingness to change brand to achieve better connectivity

Over time, % of respondents¹



By country, % of respondents from 2019 survey



¹Average of China, Germany, and US, to keep comparability with historical results.

Source: McKinsey ACES Consumer Survey, 2014–19

- **Electric vehicles (EVs).** When Americans contemplate an EV purchase, they are 2.5 times more likely to prefer dealing with a traditional OEM over a specialized EV manufacturer. Ironically, however, many US respondents said the latter lead in developing EVs while established OEMs are losing ground.
- **Shared mobility.** Even if robo-taxis—driverless, on-demand cars—become commonplace and affordable, 70 percent of Germans and 76 percent of Americans want to keep their private cars.

Despite the encouraging survey findings, traditional OEMs still face some headwinds

While consumers believe traditional OEMs have ACES capabilities, they did express some concerns. For instance, our survey found that two-thirds of respondents trusted traditional OEMs—both premium and mass market—to provide vehicles with autonomous features. However, only 43 percent of global respondents stated that traditional OEMs were the leaders in AV development—a drop of 13 percent since 2017. The majority believed that most AV innovation came from “young or rising” car companies or big high-tech players.

Our survey suggests that all automakers, including traditional OEMs, must address consumer concerns about ACES trends. Some customers think that AVs and EVs are too expensive. Others believe that EV range is too limited, or express doubts about abandoning private-vehicle ownership in favor of shared mobility. There are also major questions about the future of ACES in China—the world’s largest automotive market and one in which consumers have exceedingly high expectations.

Price pressure for EVs and AVs

Over 70 percent of German respondents believe EVs will lessen transportation’s impact on the environment, but fewer than 20 percent would pay

a premium for them. This finding also holds true in the global market. For battery electric vehicles (BEVs), only 16 percent of respondents were willing to pay a premium over the price for a vehicle with an internal combustion engine (ICE) (Exhibit 3). Of this group, only 9 percent were willing to pay a premium of 16 percent or more. These findings indicate OEMs may potentially face intense price pressure when bringing BEVs to market.

As with EVs, our survey suggests that AVs may also experience greater price pressure in the future.

Additional electric-vehicle pain points

Beyond price, EVs face other challenges. The top concern relates to vehicle range, even in countries where average driving time is limited. In the United States, for instance, more than one-third of Americans drive fewer than five hours a week, but survey respondents were still worried about range. Charging procedures, including access to charging stations and long charging times, may also deter EV buyers. In consequence, there is a large gap between the number of consumers seriously considering a BEV as their next vehicle and the number with concrete plans to buy one (Exhibit 4). Consider Germany, where about one-third of respondents said they would seriously consider a BEV purchase, but only 5 percent had plans to buy one. The largest discrepancy is found in Japan, where 30 percent of respondents were considering a BEV purchase, but only 10 percent had concrete purchase plans.

Shared mobility

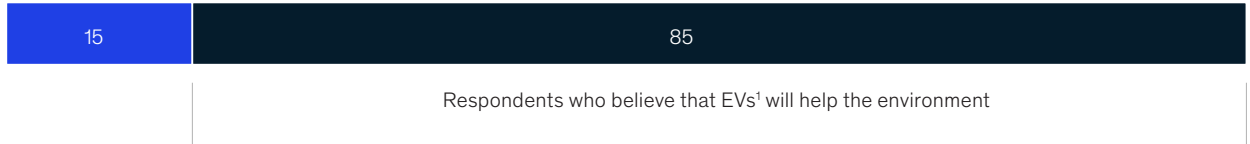
Shared mobility is growing worldwide. For instance, more than 20 percent of German respondents stated that they used car sharing and e-hailing services, which represents a doubling in the past three years.

According to our survey, about 42 percent of consumers would opt for public transportation if shared-mobility solutions were not available, while 2 percent would not take the planned trip (Exhibit 5). These findings suggest that

Exhibit 3

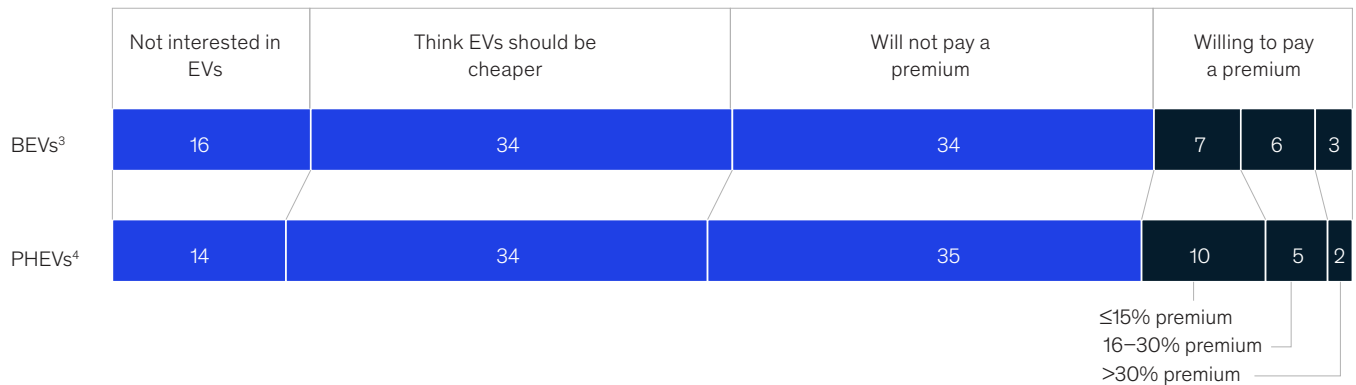
Most consumers know that electric vehicles could help the environment ...

Electrification of vehicles will make a significant difference in reducing environmental impact, % of respondents agreeing



... but are not willing to pay a premium to get one.

Willingness to pay for EVs, relative to vehicles with internal combustion engines,² % of respondents



¹Electric vehicles.

²Premium compared with same car with combustion engine.

³Battery electric vehicles.

⁴Plug-in hybrid electric vehicles.

Source: McKinsey ACES Consumer Survey, 2019

shared mobility will increase road traffic, since it cannibalizes public transit. That said, it may take years before a significant number of people give up their private cars—the core business for OEMs—and rely entirely on shared-mobility solutions, including autonomous ride-hailing services. Although such services are significantly cheaper than private-car ownership, consumers want to be reassured of a guaranteed pickup—something that may not be possible over the short to medium term.

China

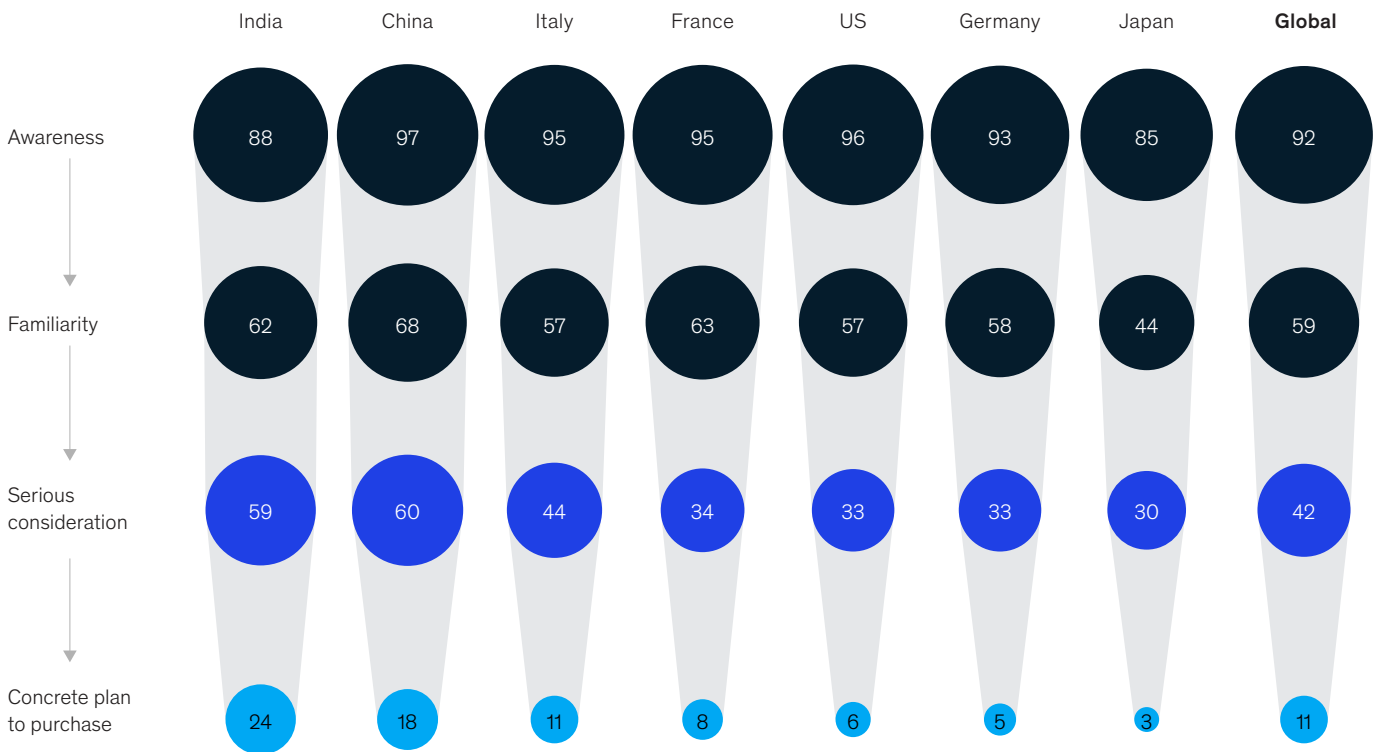
The important Chinese market will not present an easy win for traditional OEMs. Consider some of the most important challenges:

- Data monetization will be difficult. Although 49 percent of Chinese consumers were willing to share their data with big Chinese conglomerates, only 17 percent stated that they would provide this information to their car manufacturers, which are mainly Western.
- As noted earlier, 61 percent of Chinese consumers would switch to a new car brand if it offered better connectivity features.
- Shared mobility may gain traction more rapidly in China. Young Chinese are 20 times more likely to trade in their cars for a chauffeur service today than are those who are over 50 years old.

Exhibit 4

There is a gap between consumers who would seriously consider the purchase of a battery electric vehicle and those with concrete purchase plans.

Stages of purchase for battery electric vehicles,¹ % of respondents



¹Self-rated in survey.

Source: McKinsey ACES Consumer Survey, 2019

- With EVs, premium and mass-market OEMs are still viewed as the best option for purchase, but they may have difficulty retaining their top position. According to our survey, consumer trust in premium OEMs that sell EVs declined by 25 percent from 2017. Meanwhile, trust in non-automotive technology players that sell EVs increased fivefold.

Exploring other ACES findings

In addition to the findings previously discussed, our survey generated a wealth of other insights on ACES trends. For example, it suggests that OEMs should

consider establishing their EV dealership networks in suburban areas, where consumer demand for EVs is highest. Other insights include the following.

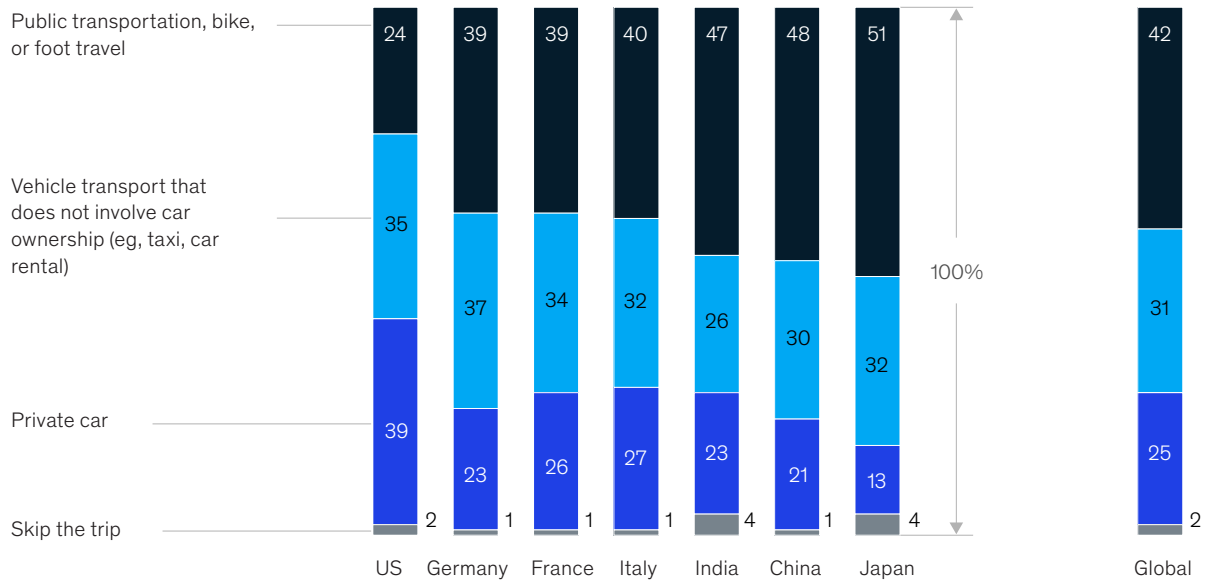
Autonomous driving

Two-thirds of respondents would switch from their current automotive brand to another if it offered better AV driving functionalities. Globally, a third expressed interest in trading in their conventional cars for AVs. In another positive finding, 47 percent said AVs will increase road safety and reduce accidents, while 45 percent trusted OEMs and authorities to make AVs safe. Overall, premium OEMs are losing ground in terms of perceived leadership in autonomous functionalities.

Exhibit 5

If ride-hailing services are not available, most consumers would use public transportation.

Chosen transportation mode when ride hailing is not available, % of respondents



Source: McKinsey Future of Mobility Consumer Survey, 2014–18

Some interesting regional variations emerged about AV attitudes. For instance, 43 percent of consumers in France said they would feel good about family members using fully autonomous cars, as did 46 percent of Italian consumers. In both Germany and the United States, however, only 36 percent of consumers expressed a similar sentiment.

Connectivity

Connectivity features were most important to consumers in China, India, and Italy, in that order. For instance, 93 percent of Chinese respondents stated that gesture control, voice assistance, and emotion recognition was important, as did 88 percent of Indian respondents and 69 percent of Italian respondents.

Electrification

Rural consumers are the most reluctant to pay a premium for EVs. In France, for example, 49 percent of rural survey respondents stated that they were

primarily concerned about price when buying a new car, compared with 29 percent of respondents in densely populated cities and 36 percent of respondents in suburban cities. These attitudes could keep EVs concentrated in cities.

Shared mobility

Most respondents in our survey still used either private vehicles or public transportation. In the United States, which has the highest rate of car commuting, 70 percent of respondents stated that they drove to work, suggesting that employers will need to maintain company parking lots for some time.

Our survey clearly indicated that consumers were open to shared mobility, however. Overall, 53 percent of respondents stated that they would be interested in giving up their cars if an autonomous taxi-driving service were available. Respondents from India were most open to shared mobility, with only

22 percent stating that they would keep their car under these circumstances. Globally, only 6 percent of respondents stated that they would move to autonomous taxis and give up their cars if the costs were higher than those associated with vehicle ownership.

As the ACES disruptions continue to transform the automotive industry, players—both established incumbents and new entrants—need to understand and anticipate the evolving competitive landscape. McKinsey's 2019 ACES survey substantiates the growing impact of these trends globally and reveals the changing perceptions of consumers, confirming that these trends are not fads. Western OEMs have been strategically astute in preparing for them.

Kersten Heineke is a partner in McKinsey's Frankfurt office, where **Benedikt Kloss** is a consultant; **Daniel Holland-Letz** is a senior research analyst in the Munich office, where **Matthias Kässer** is a partner; and **Thibaut Müller** is an associate partner in the Geneva office.

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