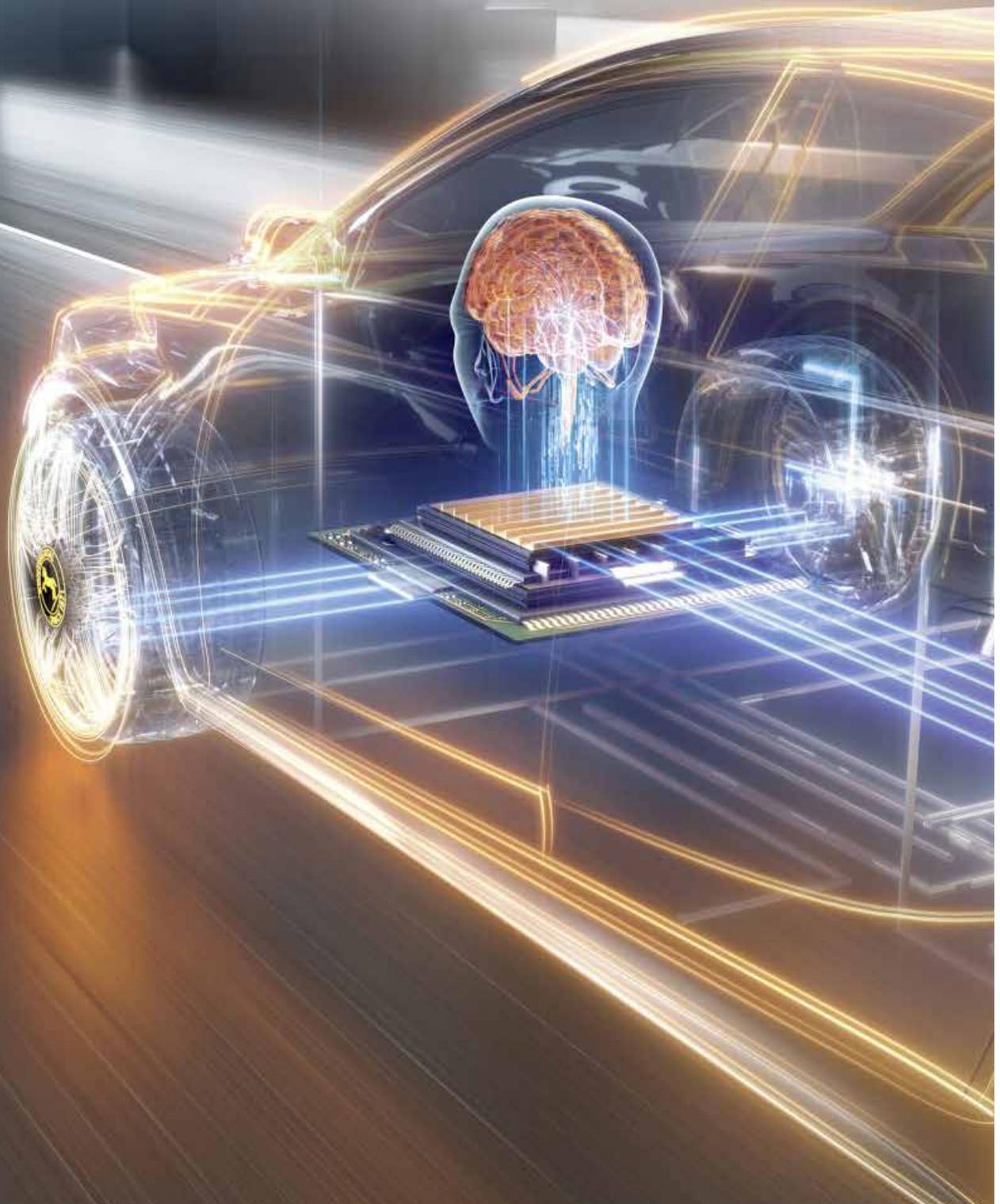


Continental Mobility Study 2020

From Driver to Passenger: Attitudes Toward
the Technological Development of the Car



The Continental Mobility Study

Since 2011, Continental as a technology company has periodically conducted mobility studies focusing on a variety of topics. The Mobility Study 2020, the sixth edition of the Continental Mobility Study, surveys attitudes toward various aspects of mobility in Germany, France, the USA, China and Japan. One of the core topics of the current study is automated and autonomous driving.

The 2020 survey was carried out in two waves, each with a different focus.

In the second wave in October 2020, a population-representative sample of over 1,000 respondents was surveyed in five countries on three continents: Germany, France, the USA, Japan and China.

The focus of this survey was on attitudes toward automated and autonomous driving: What role does driving play for the respondents? How willing are they to relinquish control, and what significance do technological developments have for them? These questions are fundamental to acceptance of the technology. The respondents were also surveyed on their openness to various assistance systems, also and in particular with regard to autonomous vehicles.

The key findings of the first wave of the Continental Mobility Study 2020 are summarized below.



Context

For years, self-driving vehicles have held great promise for future mobility. The convenience of motorized personal transport that gives drivers the freedom to attend to other tasks while en route, and last but not least, greater safety as drivers lose their significance as a potential source of error mean the benefits of this are clear.

Partially autonomous driving is increasingly being used today, and assistance systems for specific applications are being produced as standard. However, it will be some time before highly automated driving, in which the driver hands over control to the software and no longer has to monitor it permanently, or fully automated and autonomous driving can be operated in regular traffic. The technology will continue to evolve, regulatory requirements will need to be put in place - and you will need people's acceptance for a technology that hands over control of the vehicle.

Back in 2013, Continental's mobility study focused on assistance systems and automated vehicles, while the fifth edition in 2018 also took a closer look at people's attitudes toward the technology. This sixth mobility study is again shining a spotlight on this topic.



Core Results of the Continental Mobility Study 2020 - Wave 2

#1: Drivers hold on to the steering wheel - and have expectations for the existing technology

During the coronavirus pandemic, which has reinforced the importance of the automobile as a private, protected space, ownership is more in demand than sharing, with between 74 and 90 percent of people preferring to drive in their own car. 60 to 79 percent say they would prefer to drive the car themselves.

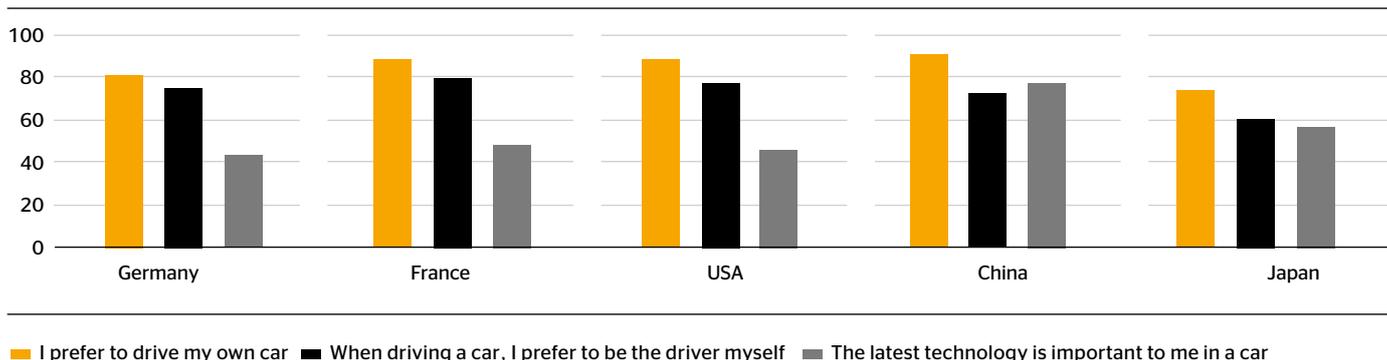
The number who favor taking the wheel themselves in their own vehicle is particularly high in France, the USA and Germany. What they have in common is that in all three nations, especially in this group, a majority say they would be reluctant to let a technology take the wheel. Despite all the discussions about future forms of mobility - from sharing models to self-driving cars - today most people still have a very traditional image of automotive mobility, which sees them at the wheel of their own car.

However, this does not mean that people are not open to new technologies. Even in the more saturated European markets, the openness of respondents to technology is comparatively high at 44 to 48 percent; in Japan and China, it is much higher still.

In China, where the proportion of people who support vehicle sharing is also the highest when compared internationally, the proportion committed to taking the wheel themselves is the lowest at 20 percent. On the other hand, this market shows the highest growth dynamics: In no other country do so many people without a driver's license say they would prefer to take the wheel themselves in their own car.

The people in the five countries surveyed are therefore not lacking in general willingness to adopt new developments in automotive mobility. However, the traditional view of driving - driving oneself and in one's own car - indicates that new forms of mobility still need to gain acceptance to become widespread. This is just as true for sharing models as it is for autonomous driving.

Attitudes toward driving



#2: The benefits of autonomous driving are increasingly being seen - but there are also still reservations

While personal transportation has gained massive momentum in the wake of the COVID-19 pandemic, people in all countries have a largely wait-and-see attitude toward automated driving.

There are clear differences between the Asian countries on the one hand and the USA and Europe on the other. In China and Japan in particular, the development of autonomous vehicles is seen by the majority as a desirable advancement that people are already waiting to see introduced.

In Germany, France and the USA, more than half of respondents say self-driving cars are useful but also a little scary.

Americans are least comfortable with the idea of giving up the wheel, and this is the country where skepticism is greatest in an international comparison. For example, 75 percent of Americans say automated driving would scare them. Moreover, this high percentage has not changed in the past two years. At the same time, however, the technology has received a significant boost in confidence in the USA as a whole. Whereas in 2018, 75 percent of Americans said they did not believe that self-driving vehicles would ever function reliably, only half of those surveyed in the USA today are still of this opinion. Long-term confidence in this technology has increased noticeably. This development can also be observed in the four other countries included in the study.

Automated driving

	Germany	France	USA	China	Japan
EXPECTATIONS					
Automated driving is a useful advancement	51	51	55	91	82
Automated driving will be a part of everyday life in 5 to 10 years	44	45	50	79	67
Automated driving could prevent accidents	51	45	49	61	75
I could do other things if the car is driving itself	40	41	48	78	65
WORRIES					
Liability regulations for automated driving have not yet been clarified at all	80	80	80	76	81
I don't believe that this will ever work reliably	51	58	52	37	37
Automated driving takes the fun out of driving	60	66	63	44	45
Automated driving scares me somewhat	53	64	75	37	46



There is much agreement on the reasons that currently speak against autonomous driving. In all countries, around 80 percent say that legislation has not yet created an appropriate framework for technical development. In addition to (primarily technical) developments on the part of manufacturers, the respondents believe that key legislative developments are needed on the part of policymakers.

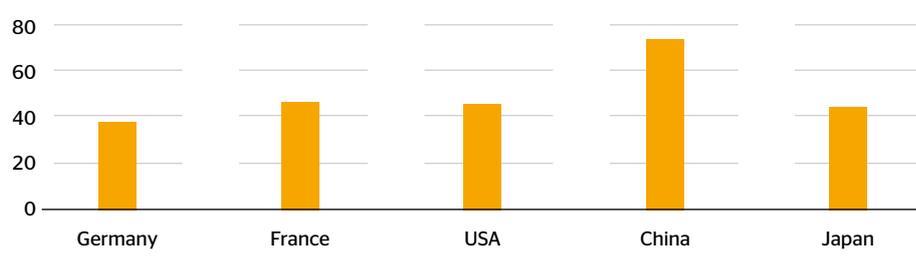
Proponents of self-driving cars cite the superior safety of the vehicles and the time saved by passengers, who can work or relax while driving. Both arguments are supported by clear majorities in Asia, while in Europe they are supported by only half of the respondents on average.

In Europe and the USA, a clear majority is concerned that self-driving cars could take the fun out of driving. In the USA, this attitude has actually increased over the past two years. Different attitudes toward the car as a means of transport can be identified here. In the USA and Europe, where the proportion committed to taking the wheel themselves is particularly high, concerns around a loss of driving pleasure is also more pronounced - the time saved by no longer driving oneself is perceived

as less relevant. In Japan, the way in which the car is viewed is more pragmatic. The traditional model of being behind the wheel of one's own car prevails, but people are more open to change if it seems advantageous to them. Openness to technology is greatest in China, where there is great potential for new technologies in a growing market.

The idea of being chauffeured around town in an autonomous robot cab has a divided response. Interest in such new technologies is most pronounced in China, while Germans are the most skeptical.

Robo-Taxi: Readiness to travel through the city in a robo-taxi



#3: Assistance systems: The clearer the benefits, the higher the acceptance

Autonomous driving, in which software takes over all tasks from the driver, is the most far-reaching form of automation. Today, there are already a large number of assistance systems that support drivers, or even take over driving tasks completely.

In China, the idea of entrusting parking entirely to an autonomous assistant appeals to a clear majority of respondents - more people than in the other countries surveyed.

Although more than half of the respondents in Germany, the USA, Japan and France would like to make use of this technology in the near future, their decision is to a greater extent dependent on the price of the assistance system. In China, this only plays a role for 5 percent of all respondents, whereas in Japan it is 21 percent.

The turn assistant enjoys a similar level of popularity as the parking assistant. The Chinese in particular are enthusiastic about using this safety feature, which specifically protects cyclists and pedestrians from turning vehicles and is initially gaining acceptance in the commercial vehicle sector. The Japanese, on the other hand, will make their decision based on price. Overall, however, there is a very high openness toward using this safety-relevant assistance system.

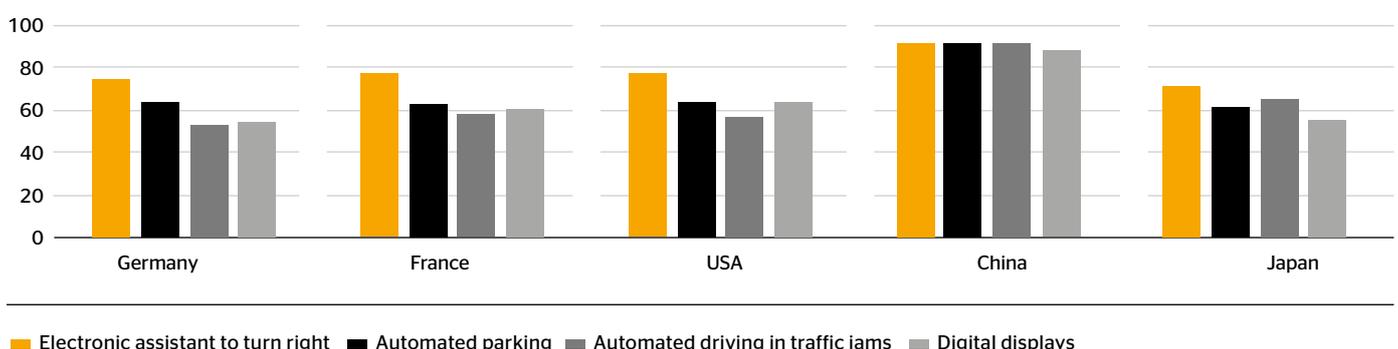
The general sentiment is somewhat more skeptical when it comes to partially automated driving, for example

in highway traffic jams, when the driver takes on the role of observer. However, the number of skeptics who would not use such automatic distance control systems in the future is significantly higher in Germany and France than when it comes to parking and turn assistance systems.

What's more, in all countries, the number of technology enthusiasts who welcome new safety and comfort assistance systems exceeds the number of skeptics. The latter are most prevalent in Germany, while in Japan and China the number of doubters is small.

China's affinity for technology is also evident in other developments. When it comes to the use of comfort features such as displays or three-dimensional imaging, the Chinese are particularly enthusiastic - 88 percent of those surveyed would like to use such technology in their car. In the other countries included in the comparison, between 54 percent (Germany) and 64 percent (USA) are in favor of the further development of digital displays. However, it is also apparent that in all countries more attention is paid to the price of such systems than in the case of pure safety technology. One's own safety and that of others takes precedence over convenience and comfort. When it comes to safety, moreover, a generally larger proportion of drivers are willing to let technology take over the steering wheel.

Interest in the following technologies



#4: Data is willingly shared when there is a clear benefit

In the countries surveyed - Germany, France, the USA, Japan and China - the majority of drivers are happy to accept the storage, transfer and processing of driving data and personal data if this serves to clarify the circumstances of an accident or improve traffic flow. This attitude is also evident in other countries, where approval rates have remained stable compared to the 2018 survey.

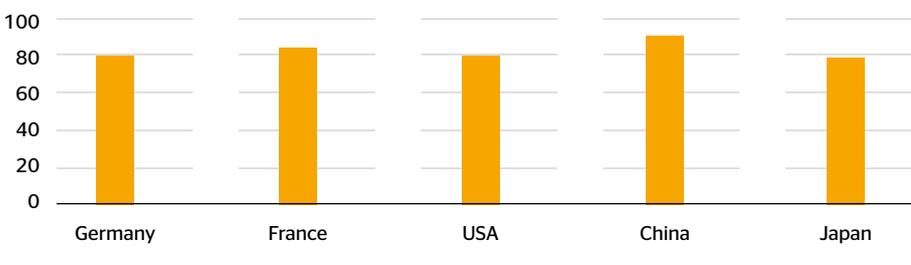
In general, the willingness to accept a black box as storage of driving data has increased slightly in all countries over the past two years. The Germans are still the most critical of the development, i.e. the number of skeptics is highest here compared to other countries.

In China, regular drivers in particular want to see further development of connectivity between vehicles and infrastructure to optimize traffic flow or avoid accidents.

Globally, the number of skeptics among drivers in this area is much lower than the number of supporters, with a particularly large number of "fans" in China. Even in Japan and Germany, however, where people have traditionally been more skeptical about sharing their own data than in many other countries, a very high degree of openness to data-based models can be observed - provided the benefits for the user are recognizable.

A distinction is made by all drivers when it comes to checking individual driving data for rule compliance. Worldwide, a clear majority remains cautious to skeptical about this technology. The situation is different when data sharing is used for traffic optimization and accident avoidance. In this case, a clear majority agrees.

Readiness to share data to improve the traffic flow





Continental Aktiengesellschaft

P.O. Box 1 69, 30001 Hanover, Germany

Vahrenwalder Strasse 9, 30165 Hanover, Germany

Phone: +49 511 938 - 01, Fax: +49 511 938 - 81770

mailservice@conti.de

www.continental.com