



Motional's Second Annual Consumer Mobility Report

November 2021

About the Report

This report is based on independent research conducted by a third party for Motional that evaluates consumers' perception of mobility and autonomous vehicles. The results consist of 1,000 total responses from general consumers in the United States who took an online survey consisting of 40 questions. The survey was fielded from Sept. 10 – Sept. 17 and has a margin of error of 3.1% and a 95% confidence interval. Motional conducted its first Consumer Mobility Report in August 2020, the results of which can be found [here](#).

Executive Summary

Americans continue to be interested in a safer, better, and more equitable approach to mobility and transportation, and the role autonomous vehicles (AVs) can play in that new paradigm. Many respondents recognize that AVs are the way of the future. More than a third said they'd be willing to use a robotaxi when available, and half believe driverless vehicles will be available in their communities within 5 years.

The survey also reaffirmed Motional's understanding that safety concerns remain a primary obstacle to near-term adoption of robotaxis, or driverless vehicles that will provide passenger service through ride hailing apps. Just 18% said they are extremely or very comfortable with using a robotaxi today.

Many have already noticed how the COVID-19 pandemic has changed their local streetscapes and are interested in mobility-related changes that would permanently transform paved areas into more friendly community spaces. Nearly one-third feel making infrastructure investments to support AVs would make their community more desirable, including the possibility of reducing the need for car ownership. More than 1 in 3 said they don't feel their community is doing enough to provide accessible transportation, and 4 in 10 said they don't have reliable access or any access to public transportation.

A growing number of respondents described themselves as knowledgeable about AVs and AV technology, but there still remain gaps in understanding and awareness. For example, 17% said they were very or extremely knowledgeable about AVs, which represents a 30% increase from 2020 (13%). Notably, in a testament to ongoing public awareness efforts, 68% correctly believe there is a difference between driverless technology and assisted driving technology, which is up from 35% in 2020. Finally, a majority of respondents want safe roadways, with most understanding that AVs will reduce drowsy, distracted, impaired, and angry driving – which are among the leading causes of traffic accidents. However only about 1 in 3 said they believe AVs will make the roads safer for other drivers, pedestrians, and cyclists. This identifies one area of opportunity where AV companies can focus public awareness efforts.

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Adoption & Safety

The widespread adoption of robotaxis as an everyday service depends in part on reassuring the public that AVs are safe.¹² The survey reaffirms that there’s still work to be done to address consumers’ safety concerns. According to the survey, more than 1 in 3 said they would be somewhat, very, or extremely comfortable taking a robotaxi today. However, 67% said safety is their number one concern related to driverless technology, with “lack of control” (60%) and “not enough testing” (45%) as the leading issues. Just 15% today believe AVs are currently safe and reliable,³ 40% said they would feel comfortable sharing the road with an AV, and 32% said they are comfortable receiving deliveries via a driverless or autonomous vehicle. They also generally trust existing driver assistance vehicle technology such as assisted parking and emergency braking and would be willing to ride in a driverless car if it demonstrated safety standards. Half of Americans believe driverless vehicles will be available near them within 5 years – up from 39% in 2020.



Accessibility & Infrastructure

Americans believe in transportation equity, according to the survey, with 58% saying transportation systems should be designed for all different levels of ability, and 43% agreeing that purpose-built transportation options should be introduced to serve the differently abled. However, there is a split when it comes to whether our communities are meeting these goals. Over 2 in 5 (43%) Americans believe the transportation systems in their community are accessible to everyone, while 35% say that not enough has been done in their community to increase access to transportation. 4 in 10 say the public transportation network in their community isn't reliable, or that they currently don't have access to public transportation at all.

More than 1 in 3 (35%) feel that communities are not doing enough to provide accessible transportation for the public but autonomous vehicles could be the

solution, with the same percentage agreeing they would support their city if it chose to invest in robotaxi/driverless technology initiatives. To that point, 29% said that the planning for/availability of driverless technology would make a city more attractive to move to.

The survey results show that a majority of Americans own a car because they would otherwise have no other reliable means of mobility. This underscores the potential opportunity for widespread robotaxi service allowing more people to opt out of owning a personal vehicle.⁴ Most survey respondents (87%) own a personal vehicle, with 58% saying the main reason was because it is the only way they can get where they need to go; 28% said they'd give up their vehicle if there were ample transportation options that allowed them to get where they need to go.

¹ Motional's Mission Statement is: "We're making driverless vehicles a safe, reliable, and accessible reality."

² The need to focus on safety was a reason why Motional undertook a self-imposed, [two-year safety evaluation](#) that resulted in TÜV SÜD, a global leader in testing, inspecting, and certification, issuing Motional its first-ever AV Permit for driverless test operation of a subset fleet of robotaxis on public roads.

³ Motional vehicles have driven more than 150,000 miles on public roadways without an at-fault accident.

⁴ A 2014 study of Singapore mobility needs determined that a widespread fleet of robotaxis could reduce car ownership by 2/3. (K. Spieser, et al. Toward a Systematic Approach to the Design and Evaluation of Automated Mobility-onDemand Systems: A Case Study in Singapore. Springer, 2014)

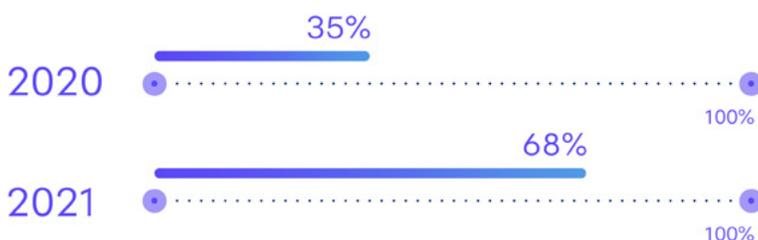
Respondents also recognize that real estate currently used for parking could instead be turned into more attractive public spaces. During COVID-19, many cities have repurposed parking spaces for seating for outdoor dining. Nearly half (47%) of respondents agree that their community has used outdoor spaces in new ways during the pandemic, with 34% saying their community benefited at least somewhat from repurposing parking lots/infrastructure during COVID. Finally, 37% feel that repurposing parking lots and other infrastructure permanently would be beneficial.

Consumer Education

Consumers over the past year appear to have improved their understanding of AVs, AV technology, and the differences between ADAS and fully driverless vehicles. But the industry still has work to do around educating the general public. Most Americans admit they are still not knowledgeable about AVs, with only 17% saying they are very or extremely knowledgeable about self-driving cars or autonomous vehicles. This figure is up from 13% in 2020, representing 30% growth in one year. Of those who say they have some knowledge, nearly half (48%) say they haven't done any research themselves. Notably, the number of people who believe there is a difference between driverless vehicles and ADAS nearly doubled, up from 35% in 2020 to 68% in 2021. The amount responding they 'don't know' decreased from 21% to 7%.

Yet, there still remains a lack of understanding around how assisted driving features work. For example, just 42% correctly said that for vehicles with assisted driving features, a human driver needs to be in control all the time, with 32% believing that human drivers need to be in control most of the time. Five percent believe human drivers do not need to be involved when ADAS features are engaged. Few Americans are knowledgeable about the five different levels of autonomy⁵, with 56% saying they have no familiarity. Just 5% say they are extremely familiar, which is up from 3%.

Percentage of consumers who understand the difference between driverless and ADAS technology



increase in consumers who say they are very or extremely knowledgeable about driverless vehicles

⁵ <https://www.sae.org/news/press-room/2018/12/sae-international-releases-updated-visual-chart-for-its-%E2%80%9Clevels-of-driving-automation%E2%80%9D-standard-for-self-driving-vehicles>

Benefits/Advantages

Survey results show that Americans are interested in the kind of future that AVs can deliver, whether its safety, convenience, or other positives they can't imagine today. A wide margin of Americans (68%) agree that ensuring safer roads should be a top priority. Over half also agree that traffic and driving related accidents are a health crisis that needs to be addressed.

Respondents think autonomous vehicles could help reduce a number of the leading causes of traffic accidents. For example, 54% say AVs will minimize the worry about intoxicated drivers on the road, as well as distracted drivers (52%), fatigued drivers (48%), and aggressive drivers (46%). Yet only 30% think driverless vehicles themselves will help reduce traffic accidents and injuries, showing that additional public education is needed to demonstrate the safety benefits of autonomous vehicles.⁶

Respondents also have varying reasons for wanting to use AVs. Maximizing time or in-car activities was top of mind (26%), in addition to improving mobility access (24%) and reducing emissions (22%). In addition, 36% believe driverless vehicles could provide unforeseen benefits.

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Conclusions:

- Americans are interested in changing how we move around our communities.
- Consumer perception around AV safety remains the leading friction point.
- Ample opportunity remains for consumer education and awareness efforts.
- Accessibility, roadway safety, transforming public spaces are issues that can increase support.

Find out more about Motional's vision at motional.com.

⁶ A 2015 NHTSA study found that human drivers were responsible for 94% of all car accidents. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115>