

Driving the future: understanding the new automotive consumer

A closer look at autonomous vehicles, in-car technologies, car sharing and ride sharing



Consumers are key to building the auto tech future

We wanted to hear what they were saying

Recently, the buzz about the vehicle of tomorrow has reached a fevered pitch. Not only are traditional automotive companies showcasing their latest exciting connectivity features but major enterprises and startup technology companies are also getting in on the game.

In fact, to read the business press it would seem that the automotive future is already here. But is it? A number of recent issues have clouded the horizon. The first assisted-driving fatality¹ occurred in 2016. Even Google, whose autonomous vehicles have logged upwards of a million miles, has yet to release a publicly available model.² All of this and more has led to a sense of uncertainty for industry watchers.



The buzz of auto tech is starting to gain traction

- But perhaps a bigger uncertainty involves consumers themselves. Are they truly ready for the influx of technology that is about to show up in their vehicles?

Uncertainty about its future continues to loom

- Few, if any, of the multitude of reports on automotive-technology* to date focuses on the consumer.

Digging into consumer perceptions will provide the framework for understanding the auto tech future

- We set about to *explore* that.



Survey design

The questions:

- Are consumers captivated or turned off by automotive technologies versus others?
- Are they receptive to new modes of travel in the “sharing economy”?
- Which of these categories is most likely to have consumers opening up their wallets?

The topics covered:

To answer these questions, we undertook an in-depth consumer investigation of four of the leading and most consumer-ready automotive technologies:

1. In-car technologies (e.g., remote vehicle shutdown and driver override systems)
2. Ride sharing (e.g., Uber, Lyft, Juno and Via)
3. Car sharing (e.g., Zipcar, Enterprise CarShare and Hertz On Demand)
4. Autonomous vehicles (a.k.a. “driverless cars”)

The sample:

We surveyed a representative sample of 1,584 consumers ages 16 and over across the United States, held in-depth focus group discussions with consumers in Detroit and San Francisco, performed online and social listening across the US, and interviewed industry experts and academics to find out what people were saying.

¹<http://www.bloomberg.com/news/articles/2016-06-30/nhtsa-opens-investigation-into-fatal-crash-in-tesla-on-autopilot>

²<https://www.bloomberg.com/news/articles/2016-09-12/google-car-project-loses-leaders-and-advantage-as-rivals-gain>

Technology and transportation: summary of findings



So what did we learn?

Below is a brief recap of our findings

It's not about age, it's about mindset



Practical benefits are more advantageous than “cool factor”

Automotive technologies are not all created equal



Here's what consumers told us:

In-car technologies are paramount around safety



Ride sharing might be the new taxi system

Autonomous driving is more top of mind than we thought; safety remains a concern



Car sharing is still an underdeveloped market

It's more about mindset than demographics

Often when it comes to technology adoption, the message is straightforward: the younger the consumer, the more apt they are to be interested. That's not entirely true in this case. In auto tech, consumers who are closer to the middle of the age spectrum (Gen X, ages 35–49 and Gen Y, ages 21–34) are most likely to be interested. The youngest consumers we surveyed, Gen Z (ages 16–20), and the oldest, Baby Boomers (age 50 and older), generally had less interest in auto tech.

What perspective auto tech intenders have most in common isn't demographic, but is, rather, a common mindset. Referred to as “enthusiasts,” their mindset and preferences make them likely to be auto tech's early adopters.



Key insight

Connecting with this group [Gen Z] will likely be the key to taking technologies like autonomous vehicles mainstream.

Practical benefits overshadow the “cool factor”

Our analysis indicates that while the excitement of new technology can draw in consumers (especially early adopters), the automotive technologies with the clearest practical benefits have the broadest appeal. For example, ride sharing, which appeals to most consumers, seems to be viewed more as a convenient life solution than as a technology.

From the consumer perspective, each of the technologies has its own allures and drawbacks

While this may not be surprising in and of itself, differences in consumer responses to these technologies provide some interesting findings:

- ***In-car technologies have the potential for mass appeal.*** Whether consumers are urban, suburban or rural, there are in-car features they find appealing. They express particular interest in safety-related technologies (e.g., driver override systems that enable a car to take over in case of emergency).
- ***Ride sharing is well on the way to becoming a mainstream service among consumers from nearly all walks of life.*** More consumers are interested in ride sharing than have so far adopted it, indicating significant near-term growth potential. Interestingly,

consumers seem to view ride sharing more as an improvement on taxi service than as a new aspect of the “sharing economy.”

- **Autonomous driving also shows strong signs of potential for becoming mainstream.** Both familiarity and interest levels are high, and most consumers believe that mass adoption of autonomous vehicles is inevitable. But the industry will have to overcome nagging questions about safety.³

Actionable insight

Ride sharing may be a means of introducing autonomous vehicles to the public, as players like Uber have started allowing customers to experience and become comfortable with this new concept.

- **Car sharing may face the greatest hurdles for broad-based adoption.** As currently understood by consumers, car sharing appears to be more a substitute for renting a car or taking public transportation than it is for owning a car, especially to those residing in urban areas and who are more dependent on public means of transportation. In fact, the idea of not owning a car appears untenable for many. Consumers see only limited occasions when car sharing makes sense (e.g., when you need a car for just a few hours). While the group most enthusiastic about autonomous driving is currently the most open to car sharing, too, these findings indicate that a “personal autonomous vehicle” may currently be a consumer’s preferred transportation solution.

The “battle of the brands” is still anyone’s game

Across technologies, both traditional car brands and newcomer tech brands have appeal. Consumers currently give luxury car brands and trusted car brands an edge. But several tech brands, including Google and Apple, are not far behind in terms of both consumer excitement and trust—despite having no “credentials” in automotive.



Key insight

In focus groups, consumers mentioned a partnership between automotive and technology brands as being an ideal auto tech offering.

Overall, our findings suggest that consumers are still sorting out the implications of new automotive technologies and what these emerging modes of transportation will mean for their lives. But it is clear that both excitement and some concerns pervade their minds. How best to convince them of the worth of the new world of auto tech? The in-depth research findings below attempt to point the way.

³<https://techcrunch.com/2016/09/14/1386711/>

Detailed findings



In-car technology

- The Internet of Things (IoT) is coming to auto
- Consumers are excited about the future
- Safety remains a top concern
- Privacy is not something to be traded
- Connectivity is key

As the Internet of Things (IoT) becomes an increasing presence in our daily lives, automobiles may be one of the most important things to get connected. In fact, our cars may soon be like travelling computer or entertainment centers, embedded with a myriad of sensors and communication devices that transmit all manner of information to and from our homes, our phones and our other personal devices. In fact, Richard Otto of Faraday Future envisions the car becoming an extension of the user, “connected to different parts of their daily lives.” He says, “When a user wakes up in the morning for work, Faraday Future’s connected car has already checked traffic conditions and sent a message to the user’s phone warning of any traffic issues, has planned the best alternate route, presets the vehicle to your personal preferences for music, seat position, climate control, etc.”⁴ Cars may even someday be able to monitor driver health and convey vital statistics to a health care provider.

“Our findings indicate that enthusiasm for in-car technologies is quite high. The majority of respondents (61%) want to see their cars become more integrated with their smartphones—in fact, during focus groups, more than one participant expressed a desire for an Apple “iCar.”

Safety is also a major factor for in-car tech preferences.

We developed a list of 10 emerging technologies already changing a drivers’ relationship to his or her car to ask consumers about:



1. Active Window Displays (i.e., where windows are screens on which you can view content or controls)



2. Reconfigurable Body Panels (e.g., truck and SUV in one)



3. Active Health Monitoring (e.g., where your seatbelt can turn into a wearable device to monitor your heart rate and more)



4. Enhanced Gesture Control (e.g., controlling your radio with a hand movement)



5. Biometric Vehicle Access (i.e., fingerprint access to your car)



6. Perfect Integration with smartphones (i.e., the ability to access smartphone controls via the car’s dashboard)



7. Driver Override System (i.e., your car can take over in case of emergency)



8. Augmented Reality Displays (i.e., superimposing computer generated images on screen)



9. Remote Vehicle Shutdown (i.e., you can turn your car off via a smartphone app in the event of a theft attempt)



10. Comprehensive Vehicle Tracking (i.e., tracking your vehicle in case it gets lost or stolen)

⁴Email interview with Richard Otto, September 23, 2016

Actionable insight

**The key to what consumers care about:
Safety + Integration**

When asked which in-car technologies they would consider having in their vehicles, technologies that garnered the most interest promote safety and security:



74%

Comprehensive vehicle tracking



68%

Remote vehicle shutdown



67%

Driver override system

Safety also came up repeatedly in our focus groups when we discussed in-car tech. Several respondents mentioned having actually retrofitted their vehicles with devices like camera-assisted back up.



Key insight

This suggests that drivers with children may be a good target market for many of the in-car tech features being developed today.

Are consumers willing to trade in privacy for cost?

One thing that consumers are reluctant to compromise on is privacy: 60% say they are not willing to give up even some privacy in exchange for getting access to the most high-tech features (e.g., seeing ads in exchange for free augmented reality display).

Actionable insight

This is an important consideration for application developers who may be relying on consumers to provide personal information in order for their technology to be fully functional.

How much consumers might want a new feature also did not always align with a willingness to pay for it. Some features—like active window display and augmented reality—did not score high in desire, but those interested in such options expressed a willingness to pay more for them.



Key insight

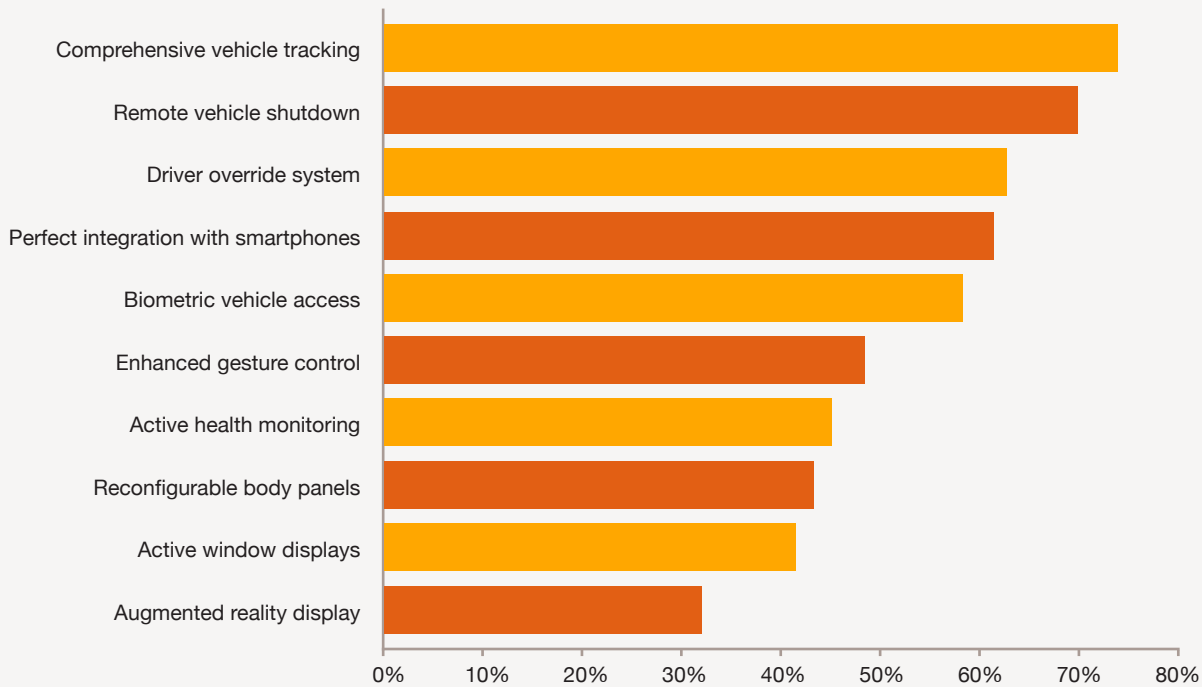
Smartphone integration emerged as a feature that consumers expect to come with a vehicle, without the need to pay more for it. But consumers would open their wallets for options like remote vehicle shutdown and comprehensive vehicle tracking. However, this does not delineate a consumer's option to pay more for autonomous vehicles.

Similar to this report, Strategy&'s Connected Car Report 2016 identified the market adoption and maturity rate of individual auto technology developments. Augmented Reality (AR), which ranks lower than most safety features is ironically low in maturity but high in adoption.

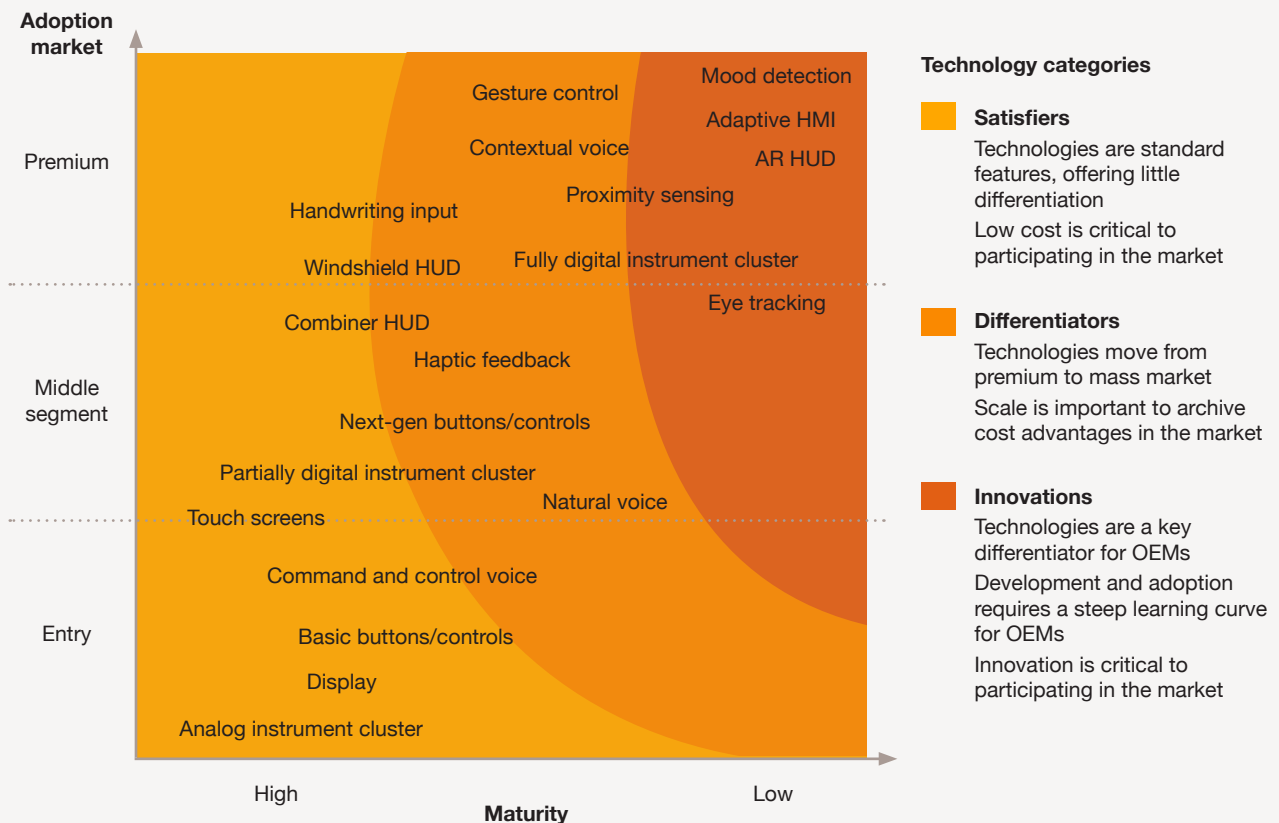
Actionable insight

It's also worth noting that—while we didn't ask about it in our quantitative study—in our focus groups, consumers expressed a near universal desire for in-car Wi-Fi.

I would consider having this technology in my vehicle (all respondents)



Technologies for the connected car: Maturity and adoption rates



In-car technology

The future is happening

Here's what consumers are saying:



As the Internet of Things (IoT) becomes an increasing presence in our daily lives, automobiles may be one of the most important "things" to get connected



Cars may even someday be able to monitor driver health and convey vital statistics to a health care provider



61% of respondents are saying, "I want to see my car become integrated with my smartphone"

And from our list of 10 asks, what are consumers willing to pay more for?



74%

Comprehensive vehicle tracking



68%

Remote vehicle shutdown



67%

Driver override system

Will consumers give up their privacy for access to high-tech features? No

60%

say they are not willing to give up even some privacy in exchange for getting access to the most high-tech features (e.g., seeing ads in exchange for free augmented reality display)

But what do they want for now?



In-car Wi-Fi



Smart phone integration

Ride sharing

- Ride sharing is gaining recognition
- Millennials are paving the path
- Cost remains to be the primary influencer
- Consumers have high hopes for this

The traditional taxi industry has been shaken in recent years by upstart companies using mobile platforms to put car owners/drivers in touch with people in need of a ride. Some services also offer customers the option of a lower fee if they share a ride with another passenger picked up at a nearby location.

Most consumers (88%) know what ride sharing is, but their degree of familiarity varies, with fewer than 46% of survey participants saying they are very or somewhat familiar with the concept. This contrasts with the 68% who say they are very or somewhat familiar with Uber—indicating that the brand name might be more meaningful than the trend.



Key insight

A minority of consumers (37%) say they have experienced ride sharing, but 55% of respondents say they are interested in trying it, suggesting that the service has considerable room for growth.

Who is championing the ride sharing revolution?

Millennials are currently the biggest patrons of ride sharing with 60% saying they have used it, compared with only 19% of those aged 50 and older. Not surprisingly, urban consumers (43%) are more likely to have used ride sharing services than are suburban (33%) or rural (22%) consumers.

Some consumers even express confidence in the idea of an autonomous car specifically from Uber, further evidence that the Uber brand may actually supersede the category in which it currently operates. Consumers may view it as a brand built more around mobility than around ride sharing.



“I’ve been taking Uber and Lyft a lot and just don’t think owning a car is necessary anymore.”⁵

– Ride sharing customer

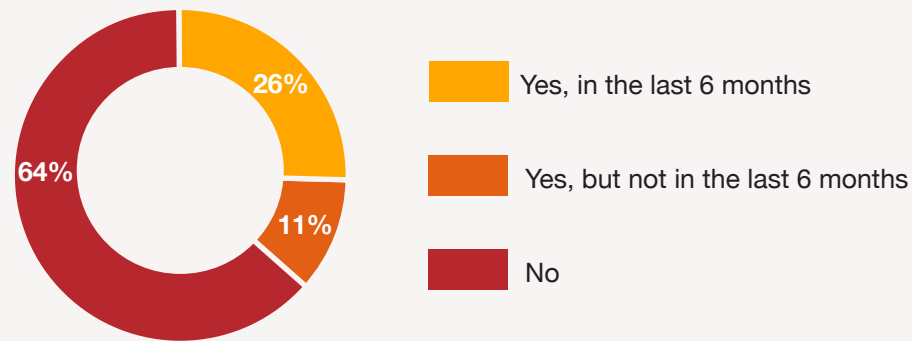
Brands such as Uber and Lyft are leading consumer commitment in various directions. Ride sharing brands in particular have captured the consumer with focus groups citing instances of car ownership with ride sharing services.



Key insight

Nevertheless, all ride sharing service providers can do more to forge an emotional connection with their customers.

Use of ride sharing services



How much does cost factor in?

Regardless of which ride sharing service is winning the hearts and minds of customers, one of the primary reasons consumers opt for ride sharing over traditional taxis is cost: 75% agree that ride sharing is more affordable than taking a taxi. But they are only willing to go so far in order to keep fares low—including compromising their privacy. More than half (53%) say they are not open to having personalized advertising inside their ride share vehicles in exchange for financial incentives.

It's also important to point out that the traditional taxi is hardly dead. Most respondents (52%) disagree that taxis are a tired and outdated means of travel, and only 38% say they use ride sharing more than taxis. A number of those in focus groups expressed concern about both the safety and dependability of ride sharing services.

Overall, our findings indicate that consumers are enthusiastic about ride sharing. In fact, 75% of people agree that ride sharing services—with their mobile platform, GPS ride tracking, up-front fee estimates and automatic credit card payments—are the future of taxi-based transportation. Consumers seem to see ride sharing as an extension of the existing taxi industry—which is perhaps why most (72%) believe the ride sharing industry should be regulated.

Ride sharing

As Millennials lead the change, where will taxis go?

Here's what consumers are saying:



Who's familiar with the concept?

88% of consumers know what ride sharing is, but their degree of familiarity varies



What kind of relationships do consumers have with ride sharing?

Only **21%** of a ride sharing platform users responded **"we are in a committed partnership"** when asked what type of relationship they had with the brand



And why are they choosing ride sharing? Cost

75% agree that ride sharing is more affordable than a taxi



How are consumers thinking about the future of ride sharing?

75% of people agree that ride sharing services are the future of taxi-based transportation

74% of consumers believe that ride sharing does not hurt the economy

72% believe the ride sharing industry should be regulated

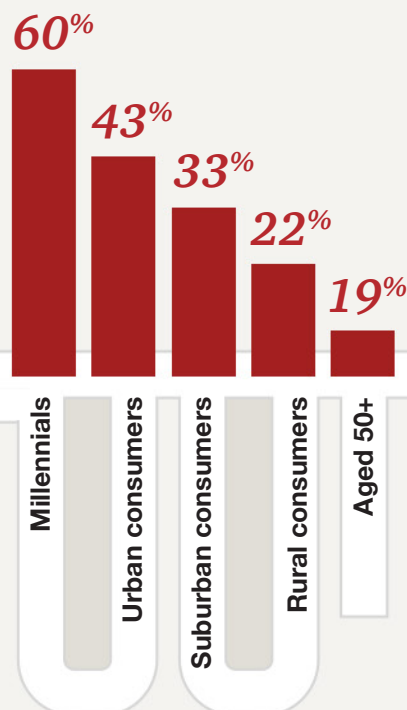


Who uses ride sharing?

37% of consumers say they have experienced ride sharing

55% of respondents say they are interested in trying it

Demographics of usage



Car sharing

- Car sharing is still a developing market
- This has Millennials rethinking ownership
- There is a gap between supply and demand
- The future remains uncertain in this area

Car sharing has actually been around longer than ride sharing, and is most popular in major cities and on college campuses. The service allows users to rent a car for a shorter period of time than traditional rentals. The fee is usually based on the number of minutes or miles the user drives, and, unlike traditional rentals, gasoline and insurance are normally included in the fee. There are, typically, designated locations for users to find or drop off the rental car, and, like ride sharing, the service is managed on a mobile platform. Some car sharing services allow car owners to rent out their vehicles when they are not using them.



70% say they have heard of car sharing



88% have heard of ride sharing

sharing vs. 88% who have heard of ride sharing. While, as we saw earlier, leading brands like Uber and Lyft are better known than the concept of ride sharing, the same cannot be said of car sharing and its leading brand, Zipcar. While 70% of respondents are familiar with car sharing, only 52% are familiar with Zipcar, and the other car sharing brands we studied have even lower familiarity.



Key insight

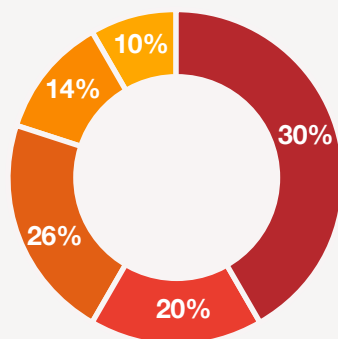
While 53% agree that car sharing has fewer hassles than owning a car, nearly three-quarters (73%) would prefer to pay for their own car than use car sharing services. This seems to indicate that, for most consumers, car sharing is not a replacement for owning a car.

How familiar are consumers with car sharing?

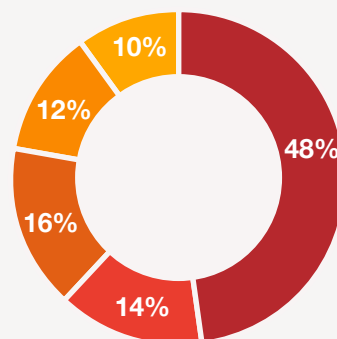
Consumers are less familiar with car sharing than they are with ride sharing: only 70% say they have heard of car

Car sharing appears to be a Millennial-driven phenomenon with 41% saying they have used it, compared with only 10% of those age 50 and over.

Car share vs. Zipcar familiarity: Total population



Total familiarity: car share



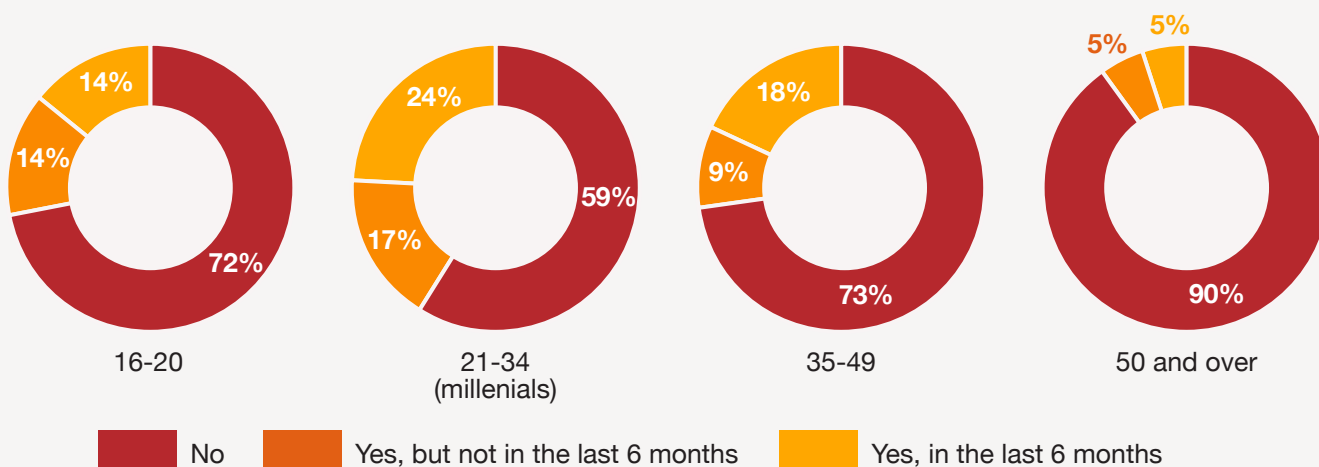
Total familiarity: Zipcar

I have heard of 1 2 3 4 5 Extremely familiar

The concept of car sharing may have a nomenclature issue. Consumers seem comfortable with the concept of car renting but have some issues with the sharing economy: 56% disagree that they love the sharing economy and 44% of consumers say they don't understand what the sharing economy is.

The true sharing economy version of car sharing, which could legitimately be labeled “the Airbnb of cars,” is a service that allows consumers to rent out their own cars when they are not being used. But our research suggests that this may be the most problematic version of car sharing. While some consumers are ready to participate in car sharing from the demand side, most don't want to participate on the supply side. Nearly three-quarters (72%) say they would never rent their car to a stranger, and the same number (72%) say they would worry about insurance issues in such an arrangement.

Ever used car sharing by age



While **23%** of consumers say they have used a car sharing service

37% say they are interested in trying it – indicating some upward potential for car sharing – but not nearly as much as we saw for ride sharing



Car sharing

The market is still ripening

Will the model of ownership change?



Car sharing has always been around but it's not well known

70% say they have heard of car sharing **vs.** **88%** who have heard of ride sharing



*Are brand names better known than the concept? **No***

70% of respondents are familiar with car sharing, but only **52%** are familiar with Zipcar



*Is there room for growth? **Yes***

While **23%** of consumers say they have used a car-sharing service **37%** say they are interested in trying it

*What cohort is leading the way? **Millennials***

41% saying they have used it **vs.** **10%** of those 50 and over



*Will this ever replace car ownership? **Not yet, but that's temporary***

While **53%** agree that car sharing has fewer hassles than owning a car **73%** would rather pay for their own car than use car-sharing services

Autonomous vehicles

- The hype around autonomous vehicles is real
- Safety is a top concern for consumers
- Consumers believe autonomous vehicles will be reality
- Automakers are still the brand of choice in autonomous production, followed by tech

Of all the emerging auto technologies we studied in this research, autonomous driving seems to generate the most intrigue. Nearly all (95%) say they have heard of at least one of the terms used to describe autonomous vehicles (e.g., driverless cars, robotic cars, self-driving cars). The term “autonomous car” actually hasn’t caught on as much as the other terms, with nearly a third (32%) saying they had never heard of the term “autonomous car.” “Self-driving cars” and “driverless cars” were far more familiar terms.

How familiar are consumers with autonomous vehicles?

Though consumers often have only a fuzzy understanding of how new technologies work, many appear to have a good grasp of the autonomous vehicle concept. When asked a series of true/false questions about the attributes of autonomous vehicles, two-thirds of those who had an opinion answered correctly.

What draws consumers to autonomous vehicles?

Most of our respondents expressed an interest in trying or buying an autonomous vehicle, particularly after these vehicles have been vetted and deemed safe. It appears that part of what is sparking interest in autonomous vehicles is the fact that consumers think others are not good drivers.



66% say that the technology within an autonomous car is probably smarter than the average driver.

This was also spontaneously mentioned in focus groups by adults of all ages.

Actionable insight

Providing better transportation for the elderly is seen as a key advantage by most consumers.

What causes the most consumer concerns?

Not surprisingly, safety emerged as the major consumer concern about autonomous vehicles. More than half (53%) say they are scared of self-driving cars: 54% say that autonomous cars are dangerous, and 28% say autonomous vehicles are susceptible to hacking.

Key insight

Consumers do believe that autonomous cars will eventually become a reality. Over two-thirds (68%) disagree with the assertion that autonomous cars will never succeed.

Experts agree that autonomous vehicles are arriving sooner than we may think. Amit Jain, who leads Strategy and Business Development in Verizon’s Telematics group, sees the next frontier being commercially available prerobotic cars. His goal is to ready this technology for 2020 release. Today, Jain and his team—in partnership with Mcity, a private/public consortium led by the University of Michigan—are working on making features like real-time mapping, early departure watching and blind spot detection available in these future vehicles.

Are customers more receptive to autonomous cars from some brands than others?

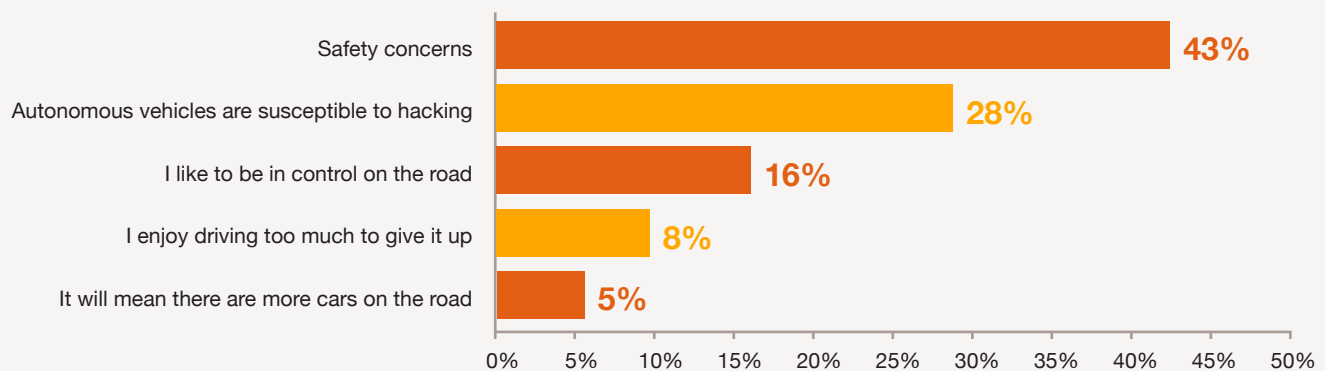
With all types of companies—from Uber to Verizon to Google—involved in either developing technology for autonomous vehicles or in building the autonomous vehicles themselves, we wanted to understand from which companies consumers would be most receptive to buying a self-driving car.



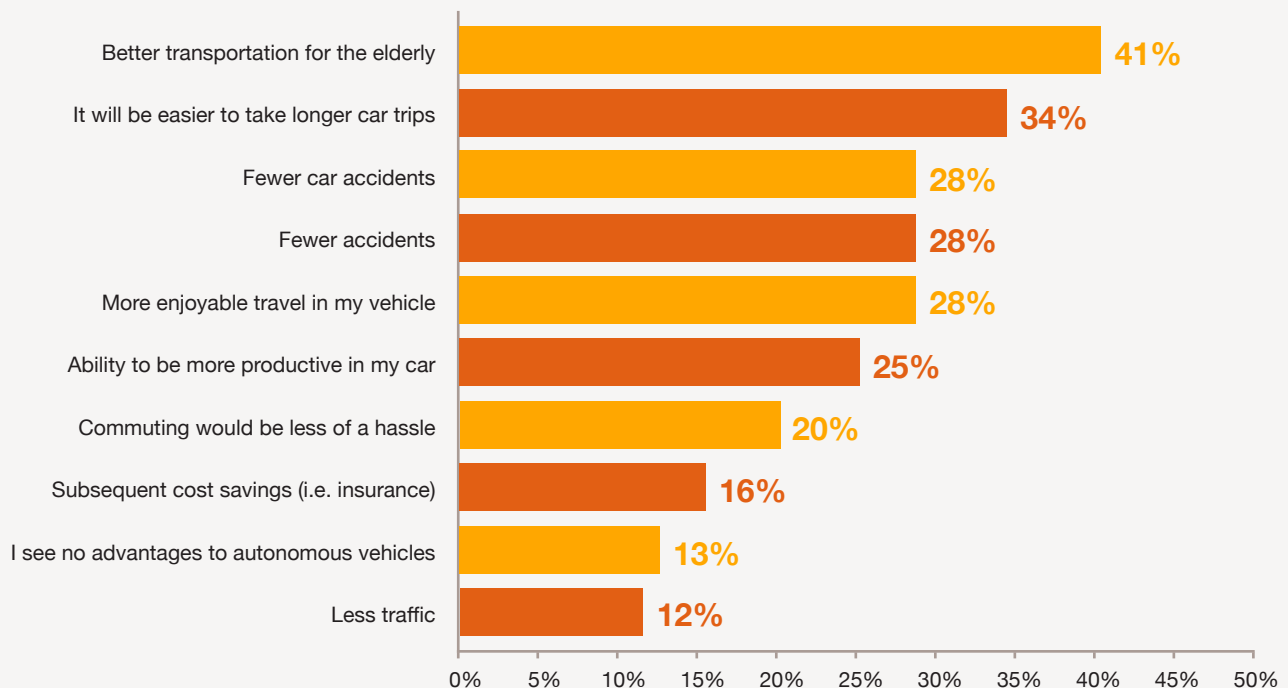
Key insight

Although consumers repeatedly express openness to brands like Google and Apple in the area of in-car technology, when it comes to autonomous cars specifically, existing automotive brands seem to have an edge.

Autonomous disadvantages



Advantage of autonomous vehicles



“Not constantly having to be driving for such a long distance.”

“You can read the paper, enjoy the scenery, whatever you want to do.”

“It would be a great solution for the older population.”

“All accidents would disappear... it would lower insurance.”

“That peace of mind, to know that you’re going to get where you need to go safe, or as safely as possible, is priceless.”

“Drunk driving would disappear... become a thing of the past.”

– Focus group quotes: benefits of autonomous vehicle

Autonomous cars

The anticipation is growing

**Consumers to makers:
ready, set, go!**

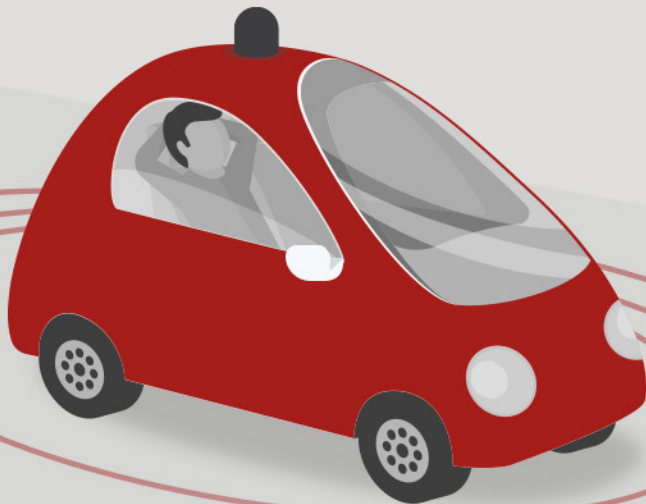


Autonomous vehicles are getting more and more buzz

95% of respondents say they have heard of at least one of the terms used to describe autonomous vehicles (e.g., driverless cars, robotic cars, self-driving cars.)

But the term “autonomous” is a little foggy

Only **32%** of people say they have heard of the term autonomous as opposed to “self-driving” and “driverless”



Does hope outweigh concern? Yes

68% of consumers disagree with the assertion that autonomous car will never succeed



Who will lead the way?

The autonomous market is still up for grabs by both traditional and non-traditional automakers. One thing is for certain: consumers are eager to see who will pave the way.



What are some of the positives associated with autonomous cars? They are better drivers

66% say that the technology within an autonomous car is probably smarter than the average driver

78% of consumers say that self-driving cars are seen as a top advantage to the elderly



So what are consumers worried about? Safety

53% of consumers say they are scared of self-driving cars

54% of consumers say that autonomous cars are dangerous

28% of consumers say autonomous vehicles are susceptible to hacking

Digging deeper: who will be the early adopters?



Demographics versus attitudinal segmentation, which one tells the whole story?

Our analysis reveals that when it comes to auto tech, demographics don't tell the whole story. In fact, the youngest age segment, Gen Z (ages 16–20), seems less interested in auto tech than in other segments, that runs counter to adoption curves for other technologies such as mobile devices, all manner of apps and social media tools. This may have to do with Gen Z's ambivalence toward cars in general—or that they aren't yet at a life stage that necessitates cars.

A more illuminating analysis emerges if we look at consumers' attitudes toward cars, driving and technology.

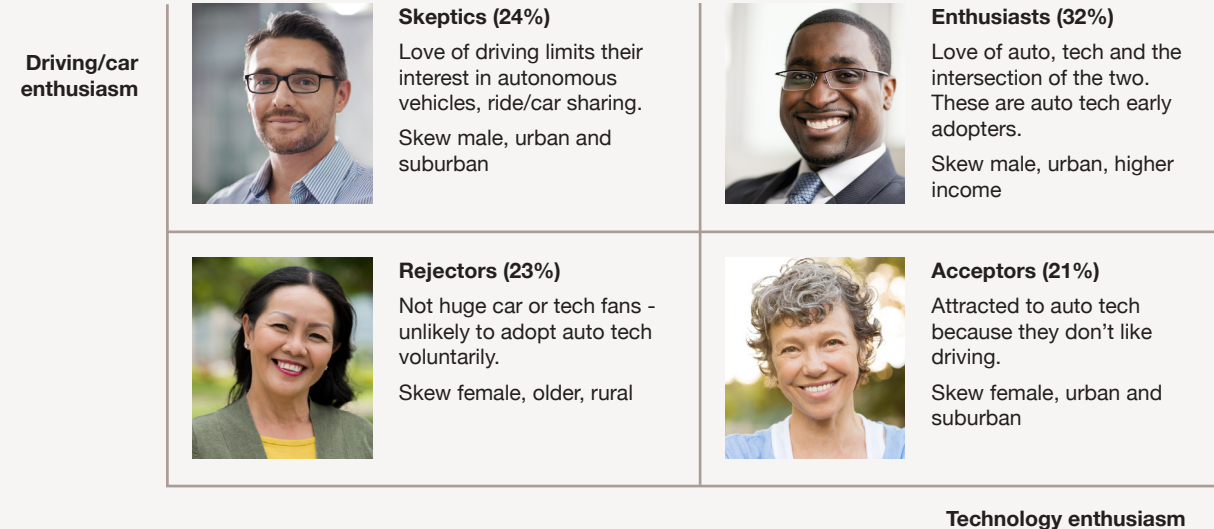


How we segmented attitudes

We created an attitudinal segmentation based on 64 questions from our quantitative study. These attitudes covered interest in ride sharing, car sharing, autonomous cars and in-car connectivity in general. We also asked about attitudes toward technology and general feelings about cars and driving. To create the segmentation, we standardized our attitudinal statements, reduced them to 11 unique dimensions using factor analysis, and applied k-means clustering.

Four segments emerged: Enthusiasts, Acceptors, Skeptics and Rejectors. These segments can be mapped along two dimensions: overall feelings about cars and driving and enthusiasm for technology.

The four mindsets



Interest levels in auto tech categories

	Enthusiasts	Acceptors	Skeptics	Rejectors
Autonomous	High	High	Low	Low
Ride sharing	High	High	Low	Low
Car sharing	High	Medium	Low	Low
In-car tech	High	High	High	Medium

Here are some more details on each segment:



Enthusiasts:

- 32% of the population studied
- They are likely to be early adopters with positive attitudes towards new technologies
- They are four times more likely than Rejectors to express interest in trying an autonomous vehicle
- Demographically, Enthusiasts are more likely to be male, Gen X or Y, better educated and have above-average income



Acceptors:

- 21% of population studied
- They are characterized by their serious dislike of driving
- Technologies that lessen their need to drive or be less involved with their cars are likely to be of most interest to them
- Demographically they are the youngest group of respondents
- They comprise the highest percentage of women



Skeptics:

- 24% of population studied
- They love to drive and own their own cars
- They tend to be lukewarm about self-driving cars, car sharing, ride sharing and in-car technologies that make cars more autonomous
- Demographically they skew more male and are the oldest of the four segments



Rejectors:

- 23% of the population studied
- They don't like to drive but appear to be both fearful of auto tech and to rely on transportation sources other than their own vehicles
- They are the least likely to be receptive to new auto tech innovations and services
- Demographically they are more made up of women and tend to be older

➡ Actionable insight

Auto tech creators and manufacturers should target Enthusiasts as the early adopters for all categories of automotive technology. They are excited by the cool factors of new technology and enjoy being the first to have it—whether it has practical benefits or not—and they are most likely to talk about it with others. That said, it's important to note that what motivates Enthusiasts probably won't motivate other groups, notably the auto tech Acceptors segment. This group will need to understand the practical benefits of auto tech, especially the convenience and ease of ride sharing and autonomous vehicles.

Lessons for the future and some closing observations



While we did not study precisely how much consumers would be willing to pay for autonomous vehicles in the future, the impact that all the changes we are witnessing will have on our economy in the long term means that this question might not be as relevant as we think today—and is hard to predict.

Economist and Microsoft senior researcher Glen Weyl notes that when it comes to the technologies of the auto tech industry, we aren't just talking about in-car services and mobile connectivity, but ultimately about a reconfiguration of efficiency in the auto ecosystem and the upheaval of commuting. He states that:

“We are really just at the beginning of what is possible in terms of the market for transportation services. In the future, firms will be able to offer prices that respond to so much more than just how much demand there is for services. They will be able to charge for the wear and tear you put on a car; they will be able to advise you as to the cheapest and easiest times to commute; and they will offer you a type of car suited to your needs (working, going out on a date) at the time you demand it. Yet, this is just what the companies will offer themselves; at least as long as it's important to the individuals and governments who will adapt to these changes. For example, individuals may eventually come to find commuting so cheap and easy that vehicle transit will become an office space in the way that trains have for many commuters.

This, in turn, will transform the shape of cities: as more people commute in cars that do not need to be parked downtown, huge areas of land will be freed up for other uses. Thus, the biggest changes we have coming are not those that directly flow from technology but from the social changes it will enable.”⁷

– Weyl, Glen. Phone Interview. 15 September 2016

For companies navigating this intersection, our research suggests some important guideposts:

Generation Z may take some wooing

As we saw earlier, Gen Z doesn't seem to have the enthusiasm for cars and auto tech that their older counterparts Gen Y and Gen X do. Either Gen Z is too young to be concerned about cars, or this could signal serious problems for the entire automotive industry if it continues. Companies will want to keep an eye on this group by offering them services that connect them more seamlessly. Focus groups have pointed out that anything from in-car Wi-Fi to a decrease of insurance costs are primary drivers for Gen Z to engage in these automotive upgrades.

Companies will need to think twice when it comes to the personalization/privacy divide

Even consumers who are excited about new auto tech developments are wary of giving up privacy. Forays into areas like customized in-car advertising will need to proceed with caution.

Trust is more important than ever

For autonomous vehicles and certain in-car technologies to succeed, consumers need to be willing to give up control and, to a degree, put their safety in the hands of their vehicles. Thus, established brands that already engender consumer trust may have an advantage.

The window is open for tech companies

Consumers consistently say they would be receptive to the idea of leading technology companies offering autonomous vehicles, as well as ride sharing or car

sharing services. This gives tech brands like Google, Apple and Microsoft an opportunity to disrupt the automotive category. Our data suggest that right now, traditional automotive brands have the edge over tech brands in the minds of the consumers. And given the upscale nature of the category of early adopters, luxury auto brands may be in a particularly strong position to dominate auto tech.

Language is important

Consumers seem to have visceral responses to terms such as driverless cars. Companies need a compelling way to talk about these emerging technologies, so that consumers understand the concepts behind them, and at the same time, will respond positively to what the companies promise to deliver.

Both in-car technology and ride sharing may offer a foot in the door for autonomous vehicles

In-car technologies that offer “self-driving lite” features (e.g., automatic braking) may be a good way to gradually introduce consumers to the concept of autonomous driving. These technologies appear to have mainstream acceptance and are less associated with the fear factor than are purely “driverless” vehicles. Ride sharing is another way to test autonomous driving with consumers—and to win over early adopters, who are the most likely users of these services. Both Uber and Lyft are introducing semi-autonomous vehicles to their fleets through partnerships with the OEMs. This will help seed the marketplace and give consumers a means of sampling the technology before committing to it.



There is little doubt that a host of new automotive technologies will soon alter many aspects of our lives. This coming intersection of automotive and technology has profound implications not only for how we'll get around in the future but also for broader societal issues, such as our relationship with the environment, how we plan and build our cities, and the future of work. Weyl concludes that:

The question is not really “when will automated vehicles be available” but rather “when will we be able to take advantage of automated vehicles?” We are going to have a much more fluid auto structure with much less waste. We will have automated management of traffic, with smaller cars, fewer accidents and more comfortable commuting experiences. Cities will become more compact and dense because less space will be occupied by parking and at the same time it will be easier to live in the countryside and commute. Many of these changes will take decades, just as it took decades for cars to transform the way we live.⁸

⁸Weyl, Glen. Phone Interview. 15 September 2016

For more information on this research, the PwC Consumer Intelligence Series, or how changing consumer preferences are shaping your industry, please contact one of our specialists:

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