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# 2023 Global Automotive Consumer Study

Key findings: Global focus countries

January 2023

### For more than a decade, Deloitte has been exploring automotive consumer trends impacting a rapidly evolving global mobility ecosystem.

#### Key insights from our Global Automotive Consumer Study over the years:

Overall value ranked as the primary factor when evaluating brands

"Cockpit technology" and the shopping experience-led differentiators

Interest in hybrids driven by cost and convenience, while interest in connectivity centers on safety

Shared mobility emerges as an alternative to owning a vehicle

Interest in full autonomy grows, but consumers want a track record of safety

Consumers in many global markets continue to move away from internal combustion engines (ICE)

Consumers "pump the brakes" on interest in autonomous vehicles

Questions remain regarding consumers' willingness to pay for advanced technologies

Online sales gaining traction, but majority of consumers still want in-person purchase experience

Interest in electrified vehicles (EVs) grows, but worries about price, driving range, and charging time remain

The Global Automotive Consumer Study informs Deloitte's point of view on the evolution of mobility, smart cities, connectivity, transportation, and other issues surrounding the movement of people and goods. From September through October 2022, Deloitte surveyed more than 26,000 consumers in 24 countries to explore opinions regarding a variety of critical issues impacting the automotive sector, including consumer interest in EV adoption, brand perception, and the adoption of connected technologies. The goal of this annual study is to answer important questions that can help companies prioritize and better position their business strategies and investments.



#### The shift to EVs is happening, but is it moving fast enough in some markets?

Consumer interest in EVs is growing as consumers, pressured by hyper-inflationary conditions, look to lower their operating costs. However, individual markets face different challenges to maintain forward momentum. Affordability, range anxiety, and battery safety concerns remain as significant barriers to adoption.



#### An unintended benefit of the vehicle inventory crisis

Product quality still tops the list of factors driving consumer decisions when it comes to which vehicle brand to buy, but expectations regarding the acceptable length of time to wait for delivery may be starting to stretch out as a lasting by-product of the inventory crisis, potentially opening the door to a new "build-to-order" paradigm.



#### Dealers engender the most trust among consumers

When asked who they trust most, a majority of surveyed consumers across global markets point to the relationship they have with either their selling or servicing dealer, signaling the important role dealers play in the automotive value chain and a key consideration in the conversation around direct-to-consumer sales.



#### Subscriptions to connected vehicle services could be a challenge

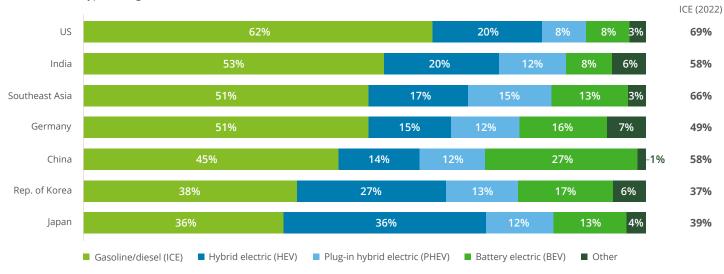
Consumer interest in connected vehicle features that provide updates regarding traffic congestion, road safety, and vehicle health status are relatively high, but people would much rather pay for connected technologies as part of the upfront cost of the vehicle or on a per use basis compared to a subscription.

# Vehicle electrification



#### The global shift to electrified vehicles is happening at very different speeds depending on the individual market. Interest in hybrid technology also continues to outstrip full battery electric vehicles (BEVs) in most countries except China.

Preference for type of engine in next vehicle



Note: Other includes vehicles with engine types such as compressed natural gas, ethanol, and hydrogen fuel cells; "don't know" responses weren't considered. Q40: What type of engine would you prefer in your next vehicle?

Sample size: n= 703 [China]; 1,128 [Germany]; 948 [India]; 567 [Japan]; 806 [Republic of Korea]; 5,089 [Southeast Asia]; 1,766 [US] Note throughout: Sum of the values in selected charts may not add to 100% due to rounding.

# Despite government messaging around the need to address climate change, the shift to EVs is primarily based on a strong consumer perception that it will significantly reduce vehicle operating costs.

Top reasons to choose an EV as next vehicle

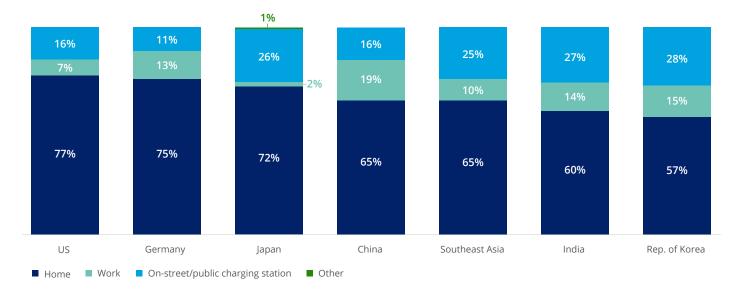
Factors	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Lower fuel costs	2	1	1	1	1	1	1
Better driving experience	1	4	2	3	3	2	2
Concern about climate change	8	2	5	7	7	6	3
Less maintenance	7	5	3	6	4	3	4
Government incentives/subsidies/ stimulus programs	6	3	7	2	2	5	5
Potential for extra taxes/levies applied to internal combustion vehicles	5	6	8	5	5	8	6
Concern about personal health	4	7	6	8	8	7	7
Ability to use the vehicle as a backup battery/power source (e.g., for home)	3	8	4	4	6	4	8
Peer pressure	9	9	9	9	9	9	9

Top reason

Q41: Please rank the following factors in terms of their impact on your decision to acquire an electrified vehicle (highest to lowest). Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

#### A focus on building public charging capacity is needed to address concerns over range anxiety, but the reality of day-to-day usage means most people will charge their EVs at home. However, this raises questions around the availability of home chargers in densely populated, urban environments.

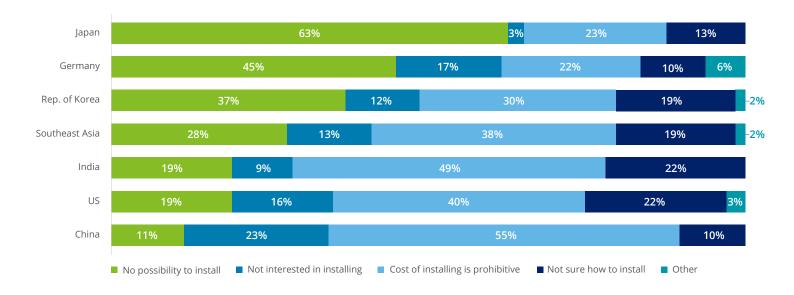
Expecting to charge electrified vehicle most often at...



Q43: Where do you expect to charge your electrified vehicle most often?

Sample size: n= 273 [China]; 313 [Germany]; 191 [India]; 141 [Japan]; 239 [Republic of Korea]; 1,446 [Southeast Asia]; 273 [US]

Retrofitting home chargers in some markets may be a significant challenge, but there may be an opportunity to engage consumers in markets where the primary barrier to home charging is cost.

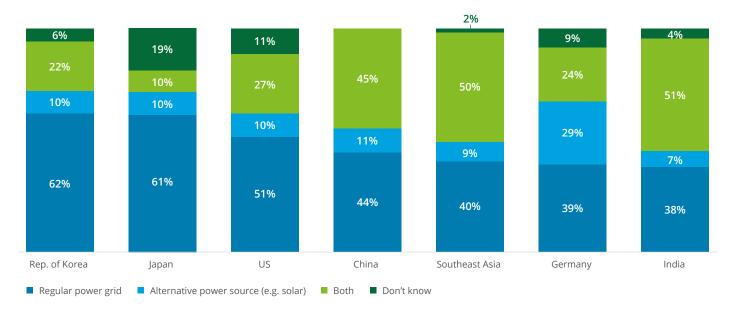


Main reason not to charge an EV at home

Q45: What is the main reason you do not intend to charge your electrified vehicle at home? Sample size: n= 96 [China]; 78 [Germany]; 77 [India]; 40 [Japan]; 103 [Republic of Korea]; 510 [Southeast Asia]; 63 [US]

## Availability of renewable power is important for EV intenders in some global markets as questions remain around grid capacity to support the shift away from fossil fuels for mobility.

How EV intenders plan to charge their vehicle at home



Q44: How do you intend to charge your electrified vehicle at home?

Sample size: n= 177 [China]; 235 [Germany]; 114 [India]; 101 [Japan]; 136 [Republic of Korea]; 936 [Southeast Asia]; 210 [US]

## Making it easy for EV owners to pay for public charging is critically important for overall adoption and may be a key differentiator for network operators trying to solidify their position in a hyper-competitive space.

Most preferred way to pay for public EV charging

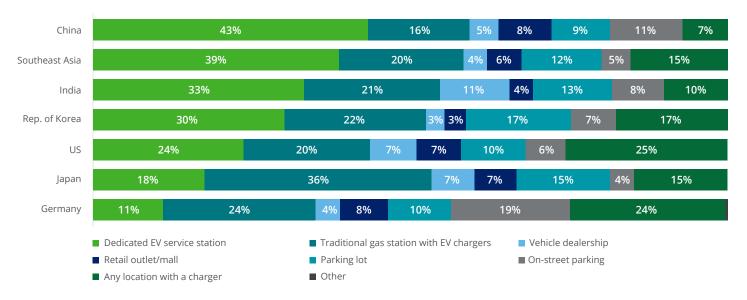
Payment methods	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Credit/debit card	17%	47%	28%	51%	57%	31%	56%
Smartphone app	53%	40%	45%	36%	32%	52%	25%
Pre-paid subscription plan	9%	7%	15%	8%	4%	9%	9%
Loyalty points	21%	5%	12%	4%	8%	7%	9%
Other	0%	1%	0%	1%	0%	1%	1%

Most preferred mode of payment

Q49: How would you most prefer to pay for public EV charging?

Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

#### When forced to charge on the go, surveyed consumers would most prefer either a dedicated EV service station or a traditional gas station equipped with chargers, but a significant number of people surveyed in Germany and the US simply want access to charging when they need it regardless of location.



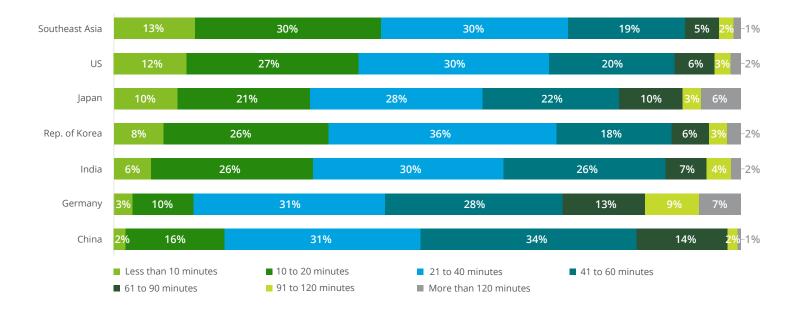
Expecting to charge electrified vehicle most often at...

\*On-street parking includes community/public buildings, hotels, etc.

Q46: Which of the following public locations makes the most sense to charge your EV when you are away from home? Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

# The assumption that EV charge times need to be on par with fossil fuel fill-ups may be somewhat overstated as surveyed consumers in most markets are willing to wait substantially longer than 10 minutes to refuel.

Expected wait time to charge an EV at public charging stations from empty to 80%



Q47: How long would you expect it to take to charge your EV from empty to 80% at a public charging location? Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

## With consumers ready to spend a significant amount of time at charging stations, service providers can focus on amenities such as Wi-Fi connectivity, beverages, and restrooms.

Type of amenities that the surveyed consumers want to have access to while their vehicle is charging at a public location

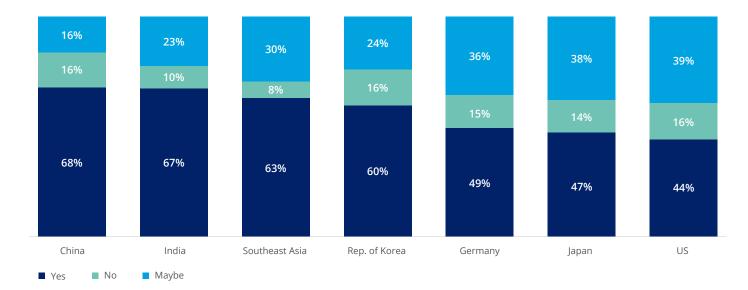
Amenities	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Wi-Fi connectivity	52%	60%	62%	61%	53%	72%	64%
Washrooms	50%	61%	62%	34%	57%	70%	60%
Coffee/beverages	43%	55%	63%	68%	71%	76%	56%
Snacks/light meals	36%	35%	56%	44%	45%	60%	48%
Lounge/sitting area	52%	30%	52%	58%	49%	60%	46%
Full-service restaurant	40%	23%	42%	23%	9%	47%	31%
Private meeting room	16%	5%	29%	16%	5%	20%	12%

Top choice

Q48: What type of amenities would you want to have access to while your vehicle is charging at a public location? Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

## In a scenario where an environmentally sustainable, synthetic fuel for use in traditional combustion engines was commercially available, a significant number of surveyed EV intenders would rethink their decision.

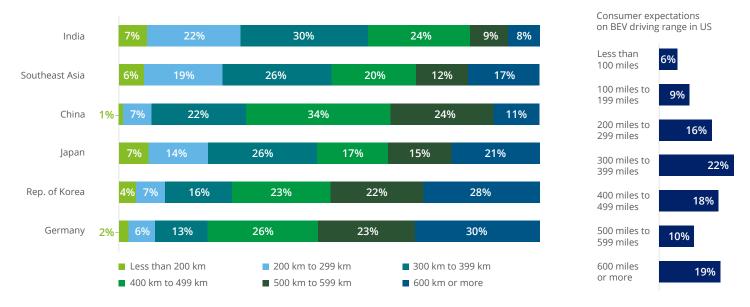
Percentage of consumers who would rethink to purchase an EV if an environmentally sustainable, synthetic fuel alternative is available for traditional (ICE) engines



Q42: In a scenario where an environmentally sustainable, synthetic fuel alternative (i.e., carbon-neutral gas) that would work in traditional internal combustion engines was readily available, would you rethink your decision to purchase an EV? Sample size: n= 374 [China]; 478 [Germany]; 384 [India]; 345 [Japan]; 453 [Republic of Korea]; 2,305 [Southeast Asia]; 618 [US]

## Expectations for BEV driving range vary significantly by global market as 41% of surveyed consumers in India want 400 km or more, whereas 79% of consumers in Germany said the same.

Consumer expectations on BEV driving range



Q52: How much driving range would a fully charged all-battery electric vehicle need to have in order for you to consider acquiring one? Sample size: n= 516 [China]; 1,103 [Germany]; 879 [India]; 597 [Japan]; 757 [Republic of Korea]; 4,578 [Southeast Asia]; 1,746 [US]

# With the exception of China, where BEV battery safety is top of mind, surveyed consumers are generally most concerned about charging time, a lack of affordability, and range anxiety (vehicle + charging infrastructure).

Greatest concern regarding all battery-powered electric vehicles

Concern	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Cost/price premium	19%	44%	36%	50%	38%	43%	52%
Driving range	29%	57%	32%	43%	36%	43%	48%
Time required to charge	30%	45%	36%	50%	49%	49%	47%
Lack of public electric vehicle charging infrastructure	29%	47%	43%	46%	42%	54%	46%
Lack of a charger at home	15%	45%	31%	47%	27%	36%	40%
Cold weather performance	28%	34%	35%	27%	39%	31%	33%
Ongoing charging and running costs	27%	26%	29%	32%	29%	40%	33%
Safety concerns with battery technology	32%	30%	40%	30%	46%	40%	30%
Lack of sustainability (i.e., battery manufacturing/recycling)	29%	32%	36%	24%	24%	33%	30%
Increased need to plan trips	16%	23%	24%	10%	12%	25%	27%
Lack of alternate power source (e.g., solar) at home	17%	26%	33%	25%	19%	34%	23%
Lack of knowledge about EVs/EV technology	20%	13%	33%	21%	18%	34%	22%
Potential for extra taxes/levies associated with BEVs	19%	10%	27%	15%	20%	25%	20%
Uncertain resale value	16%	20%	22%	16%	23%	25%	15%
Lack of choice	13%	13%	25%	10%	11%	19%	14%

Most commonly cited

Note: Sum of the percentages exceed 100% as respondents can select multiple options.

Q51: What are your biggest concerns regarding all battery-powered electric vehicles? Please select all that apply.

Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]





# Except for Japan, where vehicle features are the driving force behind choosing a brand, consumers rely on a perception of product quality when making a purchase decision.

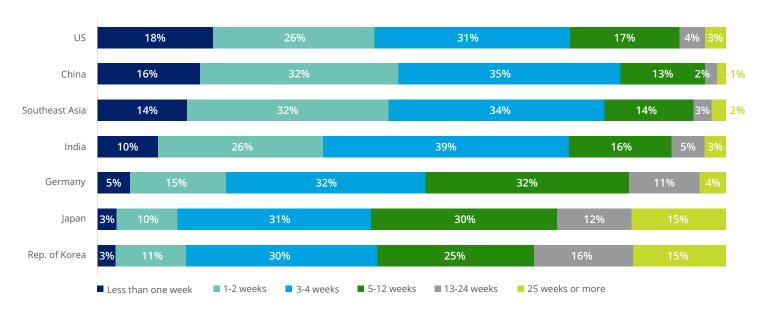
Most important factors driving the choice of brand for next vehicle

Drivers of brand choice	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Product quality	48%	54%	62%	47%	55%	71%	61%
Vehicle features	31%	32%	48%	50%	33%	52%	38%
Vehicle performance (e.g., fuel efficiency, battery range)	17%	20%	41%	42%	45%	45%	37%
Quality of overall ownership experience	31%	29%	35%	9%	21%	36%	36%
Brand familiarity	36%	35%	37%	19%	26%	34%	31%
Price	6%	31%	22%	42%	23%	32%	31%
Previous sales experience	13%	40%	29%	20%	24%	21%	24%
Previous service experience	28%	21%	28%	21%	13%	27%	21%
Brand image (i.e., environmentalism, purpose, sustainability)	36%	18%	46%	23%	27%	39%	17%
Availability of battery electric vehicles/hybrid options	19%	12%	34%	16%	19%	25%	15%
Brand advertising	29%	8%	31%	9%	11%	21%	11%
Brand affiliations (e.g., sponsorships, partners)	23%	5%	26%	4%	6%	15%	7%

Most commonly cited

Q35: What are the most important factors driving the choice of brand for your next vehicle? (Please select all that apply.) Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]

# The current inventory crisis may be training consumers to expect longer wait times for delivery of a new vehicle, potentially opening the door to a more 'build-to-order' retail paradigm.



Acceptable length of time to wait for delivery of next vehicle

Q37: In your opinion, what is an acceptable length of time to wait for delivery of your next vehicle if it meant you got exactly what you wanted (i.e., features, color, etc.)? Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]

## When it comes to vehicle purchase experience expectations, surveyed consumers in most markets place the greatest emphasis on getting a good deal with transparent pricing.

Most important aspects of the purchase experience

Aspect of vehicle purchase experience	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Getting a good deal	33%	66%	40%	65%	52%	49%	57%
Transparent pricing	29%	37%	36%	47%	63%	46%	45%
Physical interaction with the vehicle (i.e., test drive)	34%	36%	40%	51%	26%	41%	42%
Lower pressure experience	18%	27%	14%	12%	13%	14%	29%
Getting all my questions answered	29%	33%	30%	16%	12%	29%	28%
Convenient location	21%	25%	21%	19%	23%	20%	23%
To be offered different financing and usage-based models	26%	20%	26%	13%	22%	24%	17%
Making good use of my time	24%	11%	24%	14%	15%	16%	16%
Ability to complete all or some of the process online	25%	11%	29%	11%	13%	18%	16%
Building trust in the salesperson	26%	23%	17%	31%	18%	18%	14%
Having a resource for post-purchase needs	36%	11%	22%	19%	42%	26%	13%

Most commonly cited

Note: Sum of the percentages exceed 100% as respondents can select multiple options.

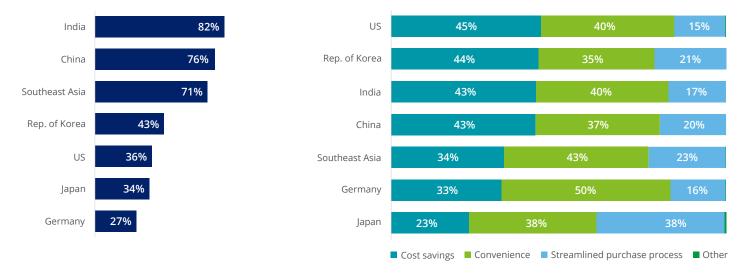
Q59: When looking to acquire your next vehicle, what are the top three most important aspects of the purchase experience?

Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]

# As OEMs look at every potential profit pool going forward, including offering their own insurance products, surveyed consumers in several markets are signaling a significant level of interest based on the perception that it will be convenient and cost-effective.

Percentage of surveyed consumers who would be interested in purchasing insurance directly from the manufacturer

For those consumers who are interested in purchasing insurance directly from the manufacturer, primary benefits are...



Q60: The next time you acquire a vehicle, how interested would you be in purchasing insurance directly from the vehicle manufacturer?; Q61: What do you expect the primary benefit of buying insurance directly from the manufacturer to be?

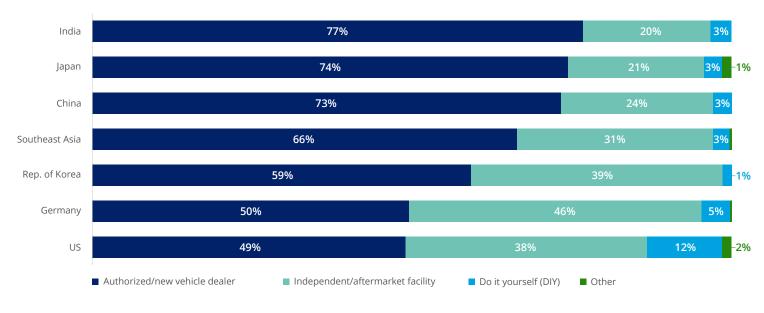
Sample size: n for Q60= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]; n for Q61= 535 [China]; 342 [Germany]; 783 [India]; 231 [Japan]; 388 [Republic of Korea]; 3,750 [Southeast Asia]; 684 [US]





# A preference for new vehicle dealers as primary service providers is more pronounced in India, Japan, and China compared to Germany and the US, where aftermarket players claim a greater share of the vehicle service market.

Preferred vehicle service provider



Q24. Where do you normally service your vehicle?

Sample size: n= 813 [China]; 1,193 [Germany]; 847 [India]; 575 [Japan]; 773 [Republic of Korea]; 4,401 [Southeast Asia]; 1,789 [US]

# Surveyed consumers service their vehicle at a dealership mainly due to a perception of work quality and trust it engenders, while the primary reason for servicing at an aftermarket provider varies significantly by market.

Reasons for choosing vehicle service provider (by preferred provider)

		De	aler		
	Cost	Trust	Convenience	Quality of work	Customer experience
China	8%	21%	15%	40%	16%
Germany	9%	30%	7%	34%	17%
India	7%	28%	10%	41%	13%
Japan	11%	54%	13%	10%	7%
Republic of Korea	12%	34%	13%	34%	7%
Southeast Asia	8%	34%	13%	34%	11%
United States	12%	23%	11%	36%	14%

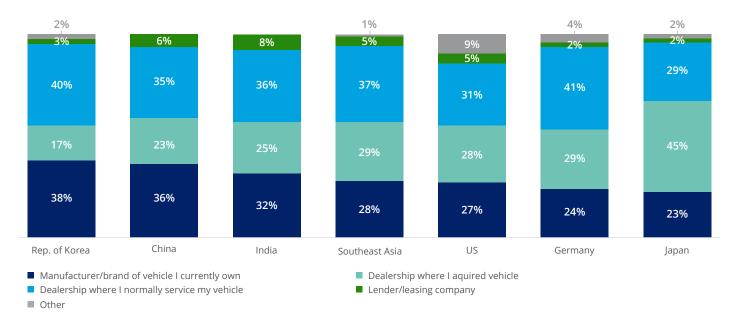
		Aftermarket		
Cost	Trust	Convenience	Quality of work	Customer experience
20%	19%	18%	27%	16%
27%	29%	8%	19%	14%
13%	28%	20%	23%	16%
43%	15%	25%	8%	7%
24%	29%	13%	28%	6%
23%	20%	16%	32%	8%
34%	19%	15%	23%	9%

Primary reason for choice

Q25: What is the most important reason for your preferred choice of vehicle service provider? Sample size: n= 790 [China]; 1,136 [Germany]; 819 [India]; 550 [Japan]; 762 [Republic of Korea]; 4,268 [Southeast Asia]; 1,551 [US]

## Consumers across markets most trust the dealer where they originally acquired or normally service their vehicle, signaling the important role dealers play in maintaining customer relationships.

Consumers surveyed have the most trusted relationship with...



Q27: With whom do you have the most trusted relationship?

Sample size: n= 813 [China]; 1,193 [Germany]; 847 [India]; 575 [Japan]; 773 [Republic of Korea]; 4,401 [Southeast Asia]; 1,789 [US]

# Surveyed consumers, across markets, expect a brand app to help them with vehicle's features, scheduling service appointments, and making payments; however, interest in using brand apps for charging and public parking is significantly lower.

Important features for a vehicle brand app	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Learn about your vehicle's features	36%	37%	42%	46%	53%	52%	36%
Schedule service	37%	32%	42%	24%	38%	45%	35%
Make payments	26%	15%	48%	28%	20%	42%	29%
Track service appointments (i.e., cost, timing)	35%	38%	44%	26%	33%	46%	25%
Lock/unlock vehicle	15%	14%	26%	20%	24%	31%	24%
Track your vehicle's location	23%	20%	35%	14%	19%	35%	20%
Locate a dealer	22%	17%	32%	11%	25%	26%	20%
Chat with a live agent	16%	8%	37%	9%	20%	30%	19%
Remote start	19%	6%	23%	9%	21%	23%	19%
Build and price your next vehicle	23%	15%	26%	15%	17%	22%	17%
Purchase accessories	25%	15%	36%	10%	11%	34%	14%
View and add features that enhance your vehicle	21%	13%	36%	14%	33%	32%	14%
View and add battery life	13%	16%	28%	17%	28%	29%	12%
View/redeem loyalty points	15%	7%	22%	7%	16%	21%	10%
Search and pay for public vehicle charging access	6%	11%	20%	8%	12%	19%	7%
Search and pay for public parking	4%	11%	9%	10%	10%	14%	5%

Most commonly cited

Q28: What are the most important features of a vehicle brand app? (Please select all that apply.) Sample size: n= 813 [China]; 1,193 [Germany]; 847 [India]; 575 [Japan]; 773 [Republic of Korea]; 4,401 [Southeast Asia]; 1,789 [US]

# 4 Connectivity



## Surveyed consumers in developing markets see greater benefits in connected vehicles and are ready to share PII\* while consumers in Germany and the US have more limited interest.

Level of consumer interest in connected vehicle features (% very/somewhat interested)

Connected vehicle features	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Maintenance updates and vehicle health reporting/alerts	80%	56%	84%	62%	66%	81%	60%
Updates regarding traffic congestion and suggested alternate routes	78%	58%	83%	66%	75%	81%	58%
Updates to improve road safety and prevent potential collisions	80%	53%	84%	66%	72%	81%	57%
Suggestions regarding safer routes (i.e., avoid unpaved roads)	82%	43%	85%	63%	68%	78%	54%
Maintenance cost forecasts based on your driving habits	81%	47%	81%	54%	61%	78%	53%
Customized suggestions regarding ways to minimize service expenses	80%	46%	81%	62%	74%	77%	50%
Over-the-air vehicle software updates that correct or improve your driving experience	76%	37%	80%	50%	62%	74%	49%
Access to nearby parking (i.e., availability, booking, and payment)	78%	51%	82%	60%	68%	76%	48%
Receiving a discount for access to a Wi-Fi connection in your vehicle	77%	38%	78%	57%	60%	71%	47%
Customized/optimized vehicle insurance plan (e.g., "pay how you drive" plans)	76%	46%	79%	47%	65%	72%	46%
Special offers regarding non-automotive products and services related to your journey or destination	76%	32%	79%	49%	55%	69%	40%

Most commonly cited

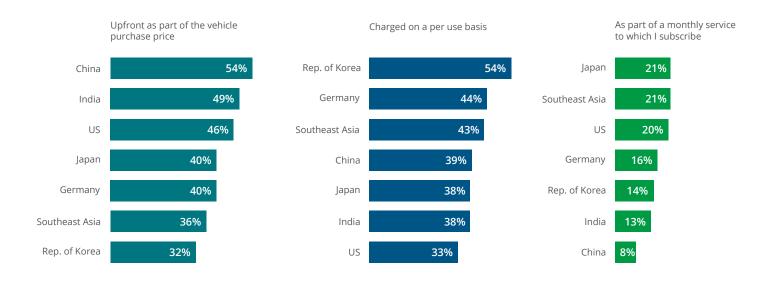
\*Personally identifiable information.

Q55: How interested are you in the following benefits of a connected vehicle if it meant sharing your own personally identifying data and/or vehicle/operational data with the manufacturer or a third party?

Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]

# Mobility providers looking to offer subscription services for connected vehicle technologies may find it challenging as most surveyed consumers would rather pay for these features either upfront as part of the vehicle purchase price or on a per use basis.

Consumers' preferred ways to pay for additional connectivity technologies



Q58: How would you prefer to pay for additional connectivity technologies in your vehicle?

Sample size: n= 707 [China]; 1,278 [Germany]; 957 [India]; 670 [Japan]; 893 [Republic of Korea]; 5,264 [Southeast Asia]; 1,881 [US]

# About the study



Vietnam (VN)

1,019

#### About the study

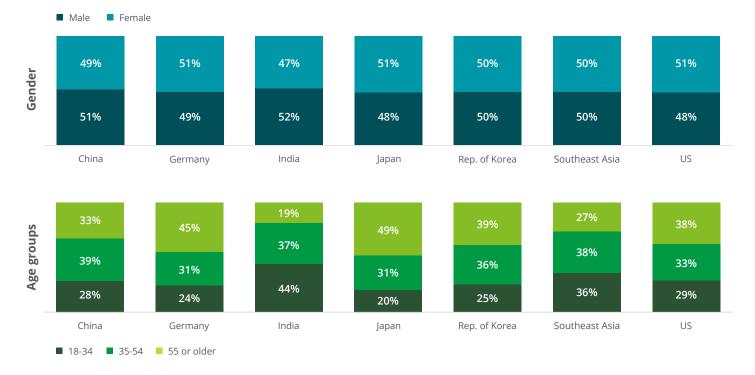
The 2023 study includes more than 26,000 consumer responses from 24 countries around the world.

North America	Sample	EMEA	Sample
Canada (CA)	1,011	Austria (AT)	1,004
Mexico (MX)	1,008	Belgium (BE)	1,019
United States (US)	2,011	France (FR)	1,006
		Germany (DE)	1,506
		Italy (IT)	1,002
		Poland (PL)	1,002
		South Africa (ZA)	1,014
		Spain (ES)	1,009
		Turnkey (TR)	1,006
		United Kingdom (GB)	1,514

#### **Study methodology** The study is fielded u

The study is fielded using an online panel methodology where consumers of driving age are invited to complete the questionnaire (translated into local languages) via email.

Note: "Sample" represents the number of survey respondents in each country.



#### Study demographics

Note: Non-binary/Non-gender confirming/Prefer not to answer percentage for India, Japan, and US is 1%; Southeast Asia region comprises Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam markets.

Sample size: n= 1,012 [China]; 1,506 [Germany]; 1,003 [India]; 1,017 [Japan]; 1,011 [Republic of Korea]; 6,048 [Southeast Asia]; 2,011 [US]

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