

Future of automotive mobility – reloaded

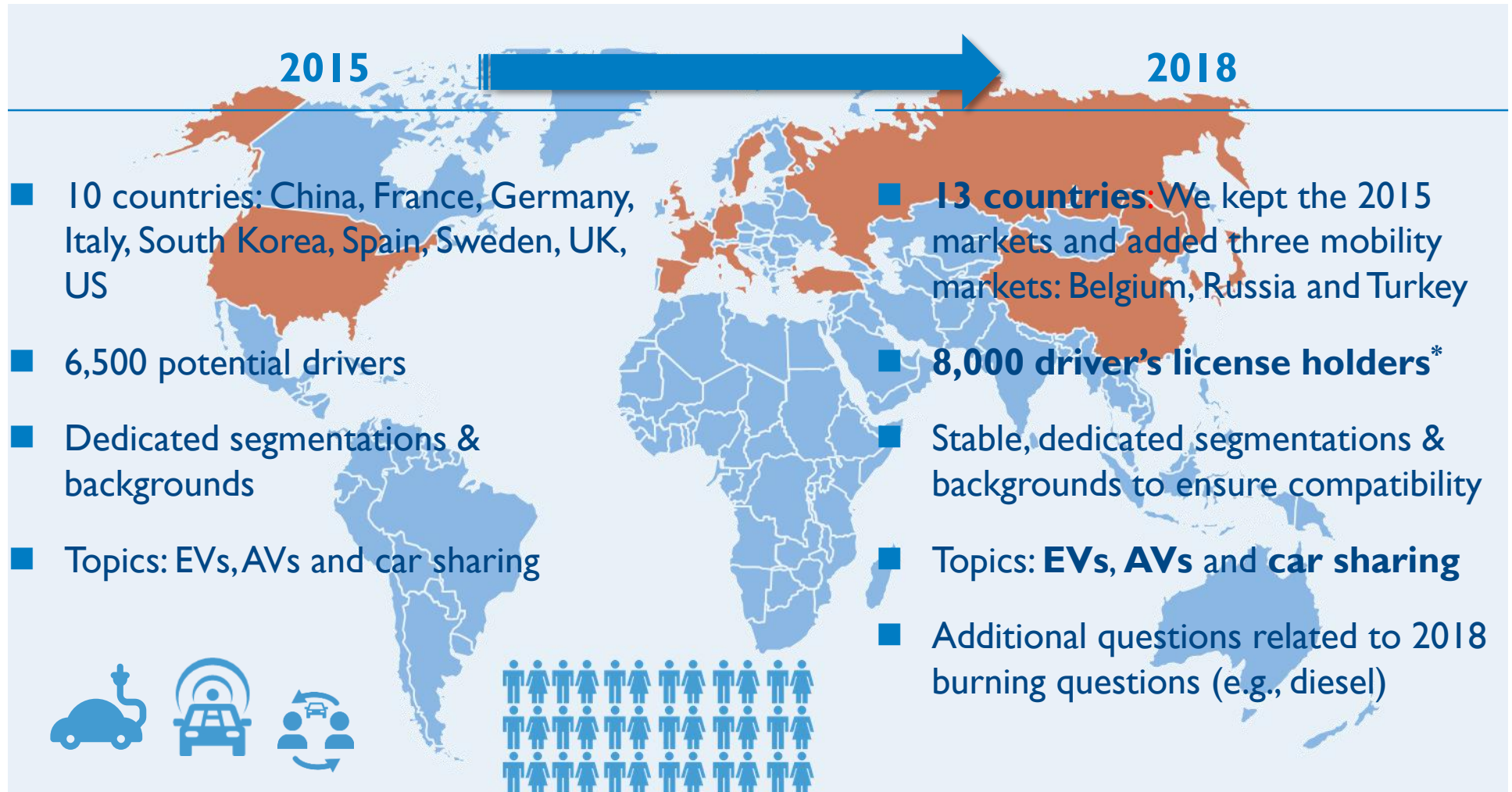
How end-customer perspective has developed on key mobility trends in the last 3 years

Executive summary

1. The **desire to own vehicles** – also from the status perspective – **has not changed** at all
2. This means Arthur D. Little's **assumptions for market volume projections remain** stable – the vehicle **market will continue to grow**
3. Despite that many people are registered for **car sharing**, consumers still consider it **(only) an additional mobility option** – with strong regional differences
4. **Support for P2P car sharing has declined**
5. Events of the last years have led to a **much more critical customer perspective of autonomous driving**
6. **Securing private data from customers is becoming a showstopper** for connected-car services and new mobility business models
7. **People are starting to think greener** – support for electric vehicles is picking up
8. A **dramatic change can be projected for drivetrain** selections – from gasoline and diesel **towards hybrid and battery electric drivetrains** – **OEMs' volume planning will be affected**



In our customer study we asked a panel of 8,000 drivers* in 13 countries

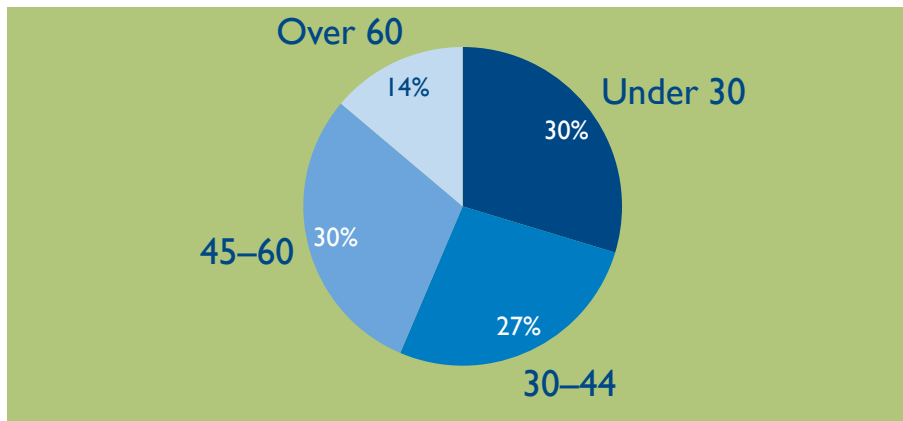


*) people with driving licenses (not necessarily owning or using cars; people who share w/o own car is at ~5%)

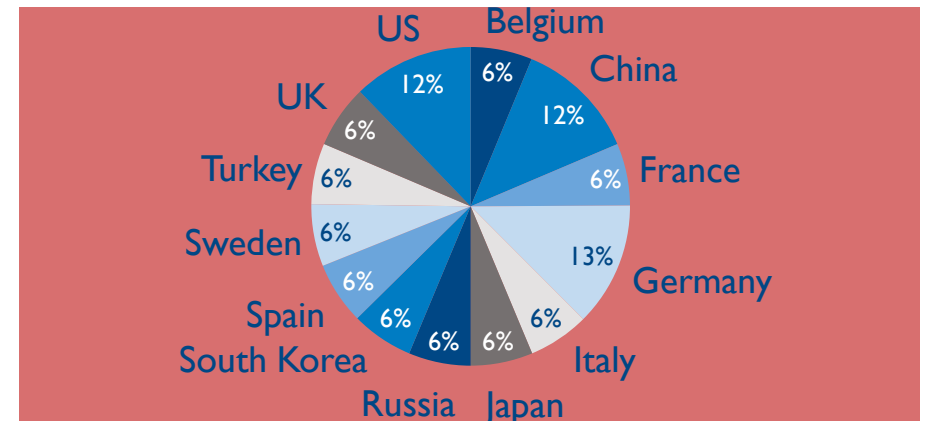
Demographics – a well-distributed study population!



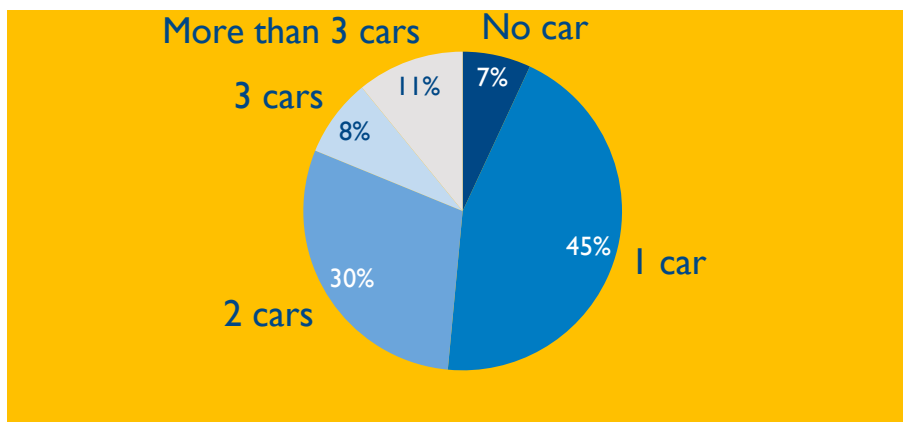
Age group



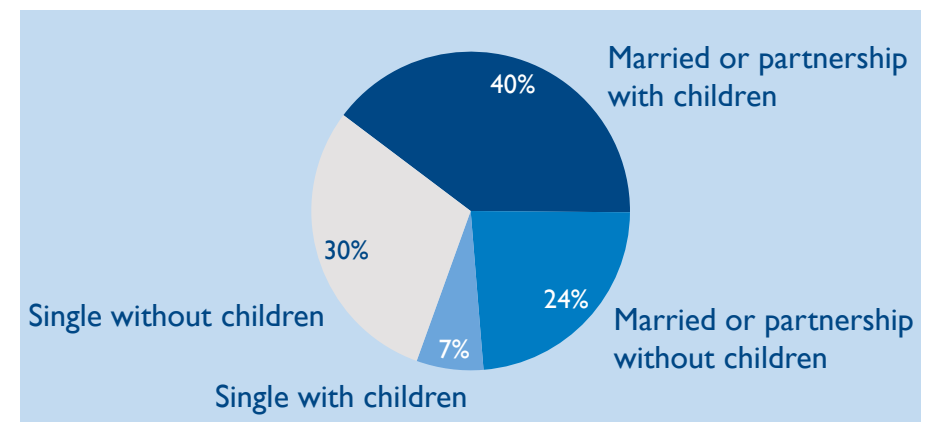
Geographic location



Cars in the household



Marital status

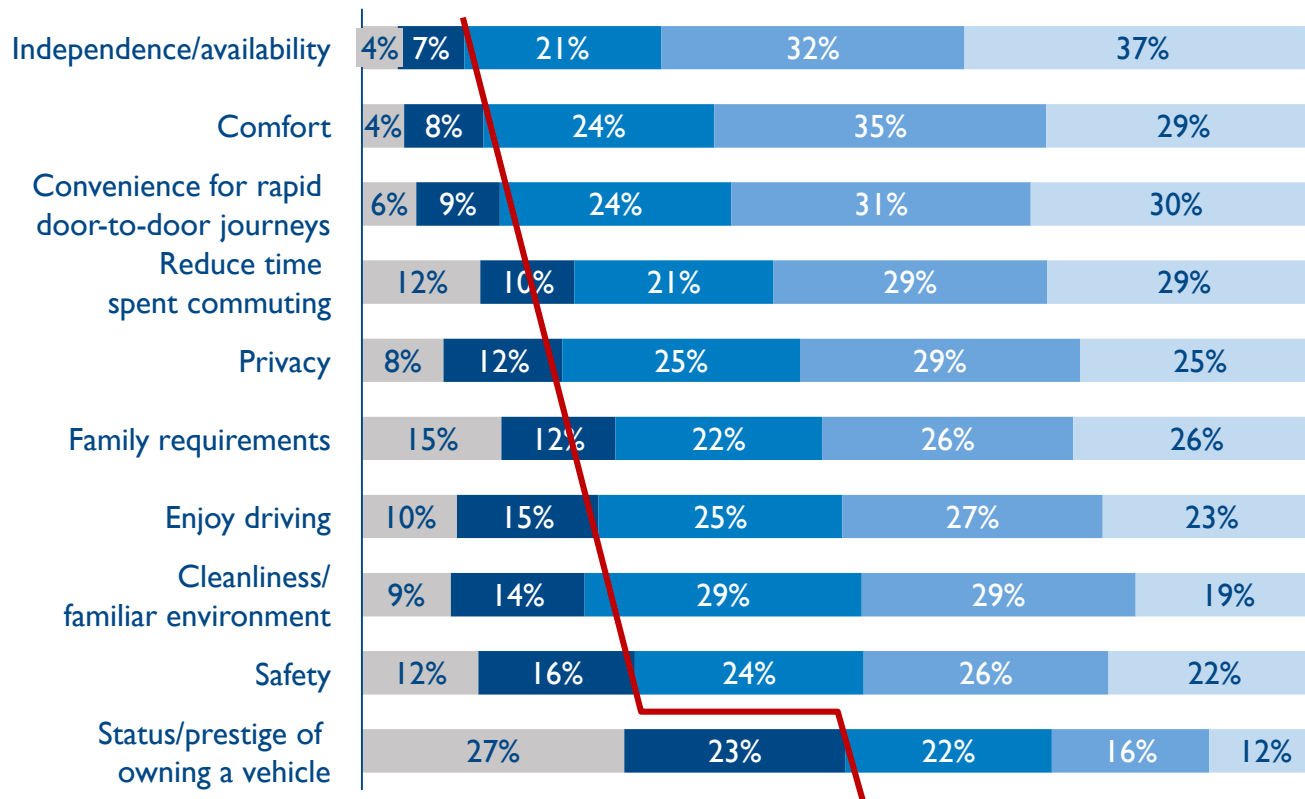


Owning cars is still important – status is least according to customers; new mobility solutions need to match comfort and independence

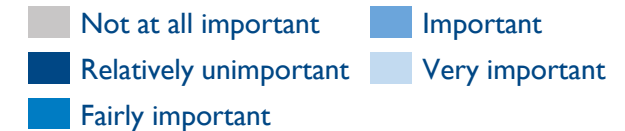
Reasons for owning a car

Sorted after percentage stating “important” or “very important”

Remarks



- Independence, comfort and convenience remain unchanged reasons to own a car – among other strong preferences
- Significant and fast change is only feasible through strong regulation
- Timing of regulation is a key driver of change

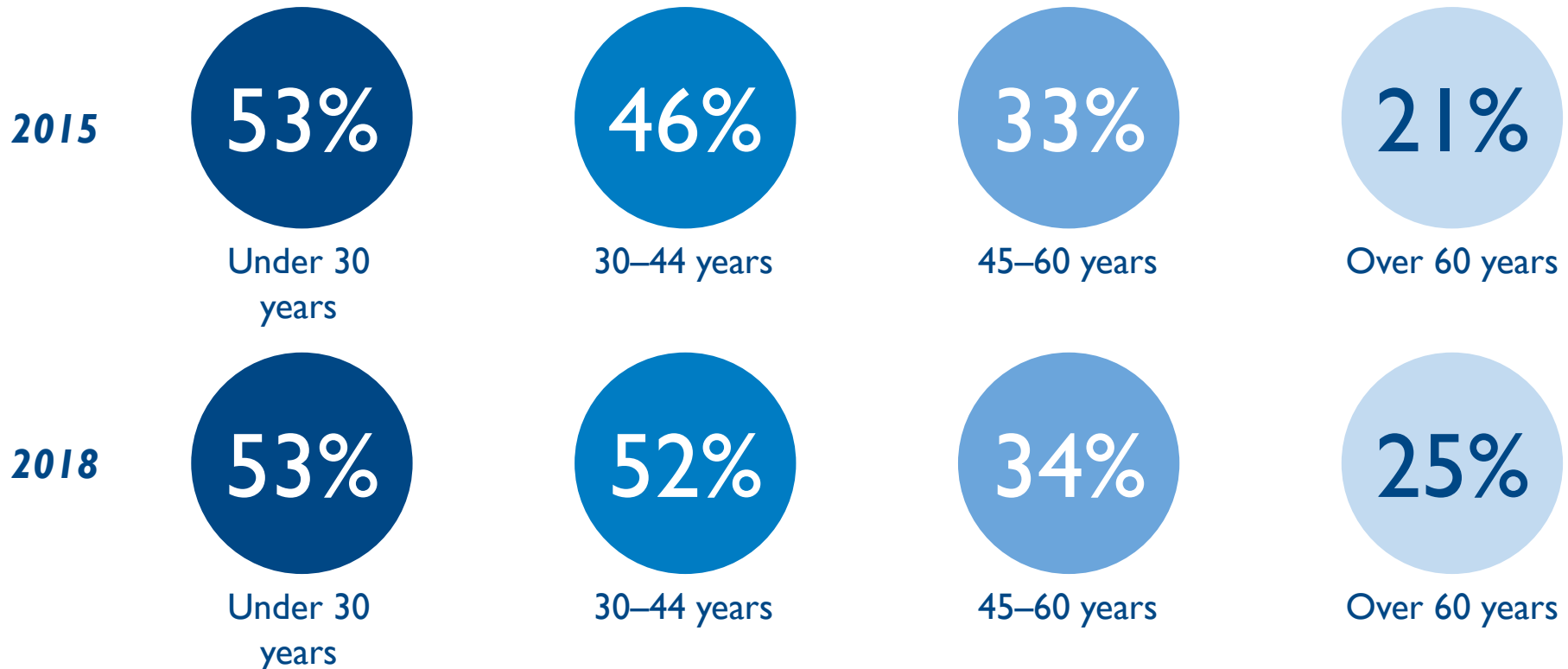


Question: Please indicate the reasons why it is personally important for you to possess (own or exclusively use) a car.

Perception of “owning a car is important to me” has not changed – the younger the people, the more important it is

Status prestige of owning a vehicle¹⁾

Germany



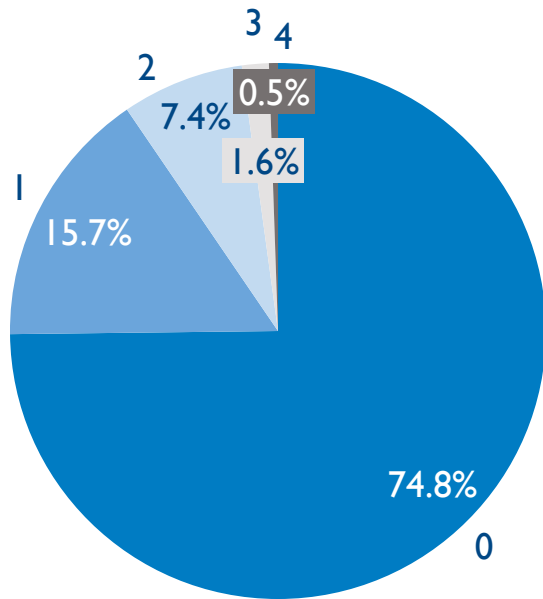
1) Answered with “fairly important”, “important” or “very important”

Car sharing remains a real option only for one-quarter of customers (but real usage is much lower, of course – at niche level)

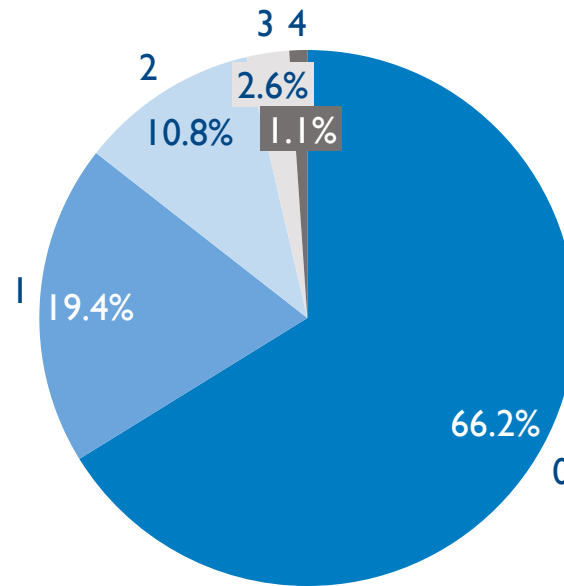
Commercial car sharing

Comparison between under-30s and the general population

Remarks



All age groups



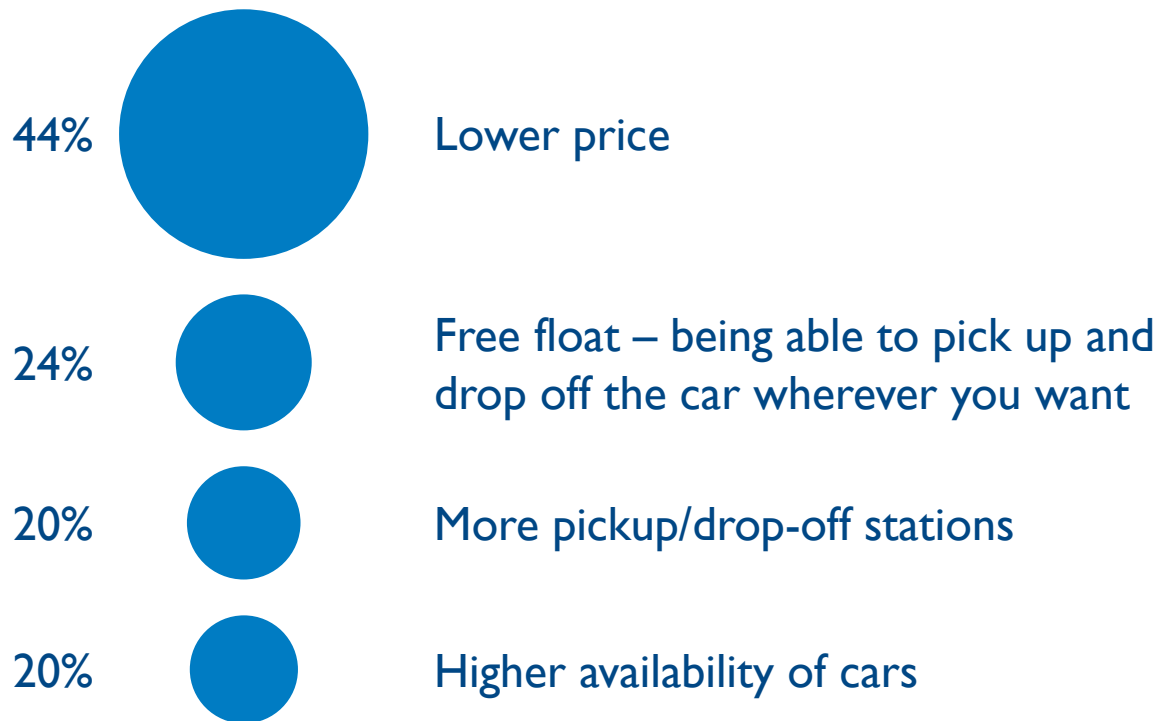
Under 30 years

- Younger generations are, in general, more open to commercial car sharing
- A high number of (younger) people, especially in large cities, are registered – often with multiple services
- Usage profiles do not correspond to the number of registered users

Question: With how many commercial car-sharing programs are you registered?

Customer demand defines clear business-model levers

Drivers of car-sharing usage



Remarks

- Price is still the most important growth driver
- Customers request more flexible car-sharing programs

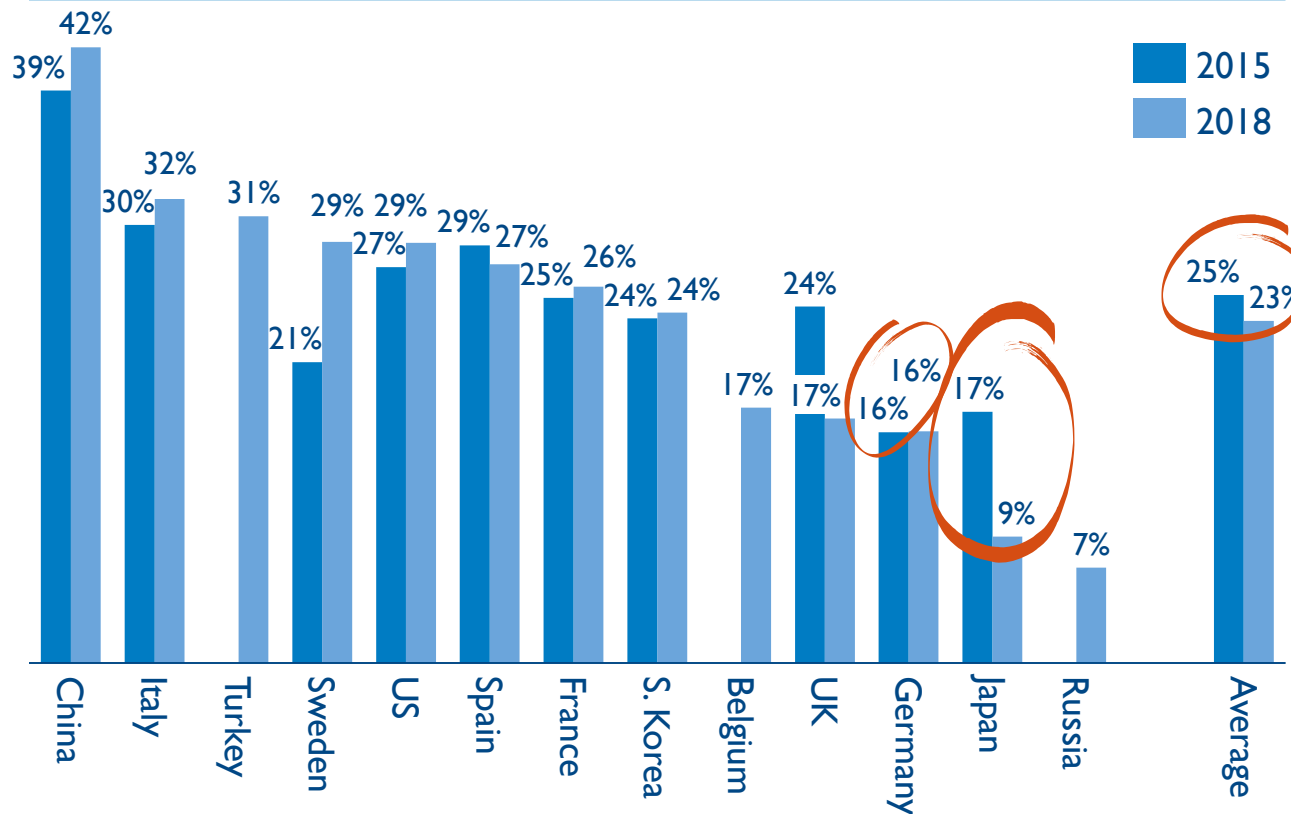
Question: What would encourage you to use car sharing more often?

Source: Arthur D. Little

The idea of peer-to-peer car sharing does not have many more strong supporters than it did three years ago

Openness to sharing the private car

Respondents answering “Yes”, per country



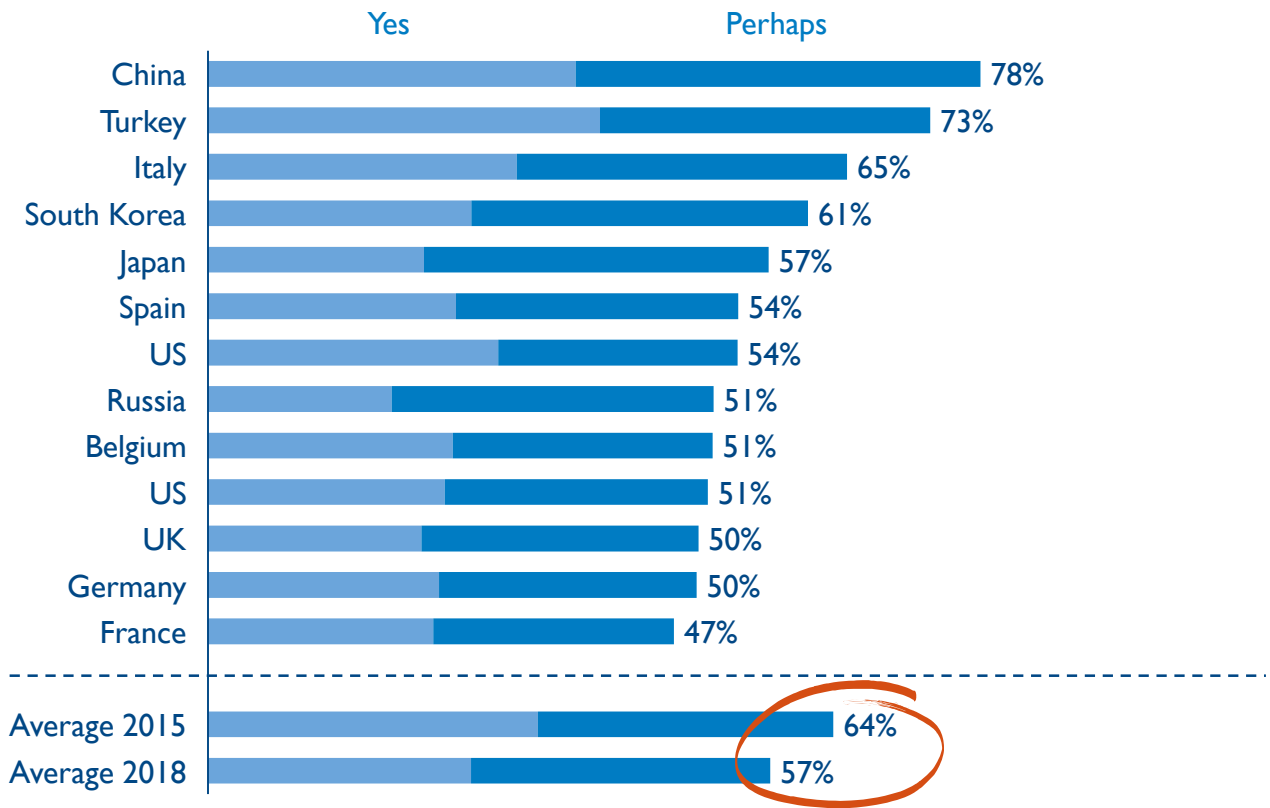
Remarks

- China is the clear leader in overall supporters, which is not surprising
- The majority of markets – including the US, reach almost one-third of supporters
- Germany has stagnated
- The percentage of supporters in Japan has significantly fallen
- Russian supporters' percentage is lowest – most coming from the Moscow area

Question: Would you consider sharing your private car during times when you do not need it?

The trust in autonomous vehicles has not increased over the last three years – it fell by 7 percent!

Acceptance of autonomous cars
Respondents who answered “Yes” or “Perhaps”



Remarks

- Again, China takes the lead in acceptance rates
- Surprisingly, it is closely followed by Turkey
- Acceptance rates among all developed countries have fallen, while understanding of the technology has raised concerns
- This is strong challenge for OEMs to explain – likewise representing large potential

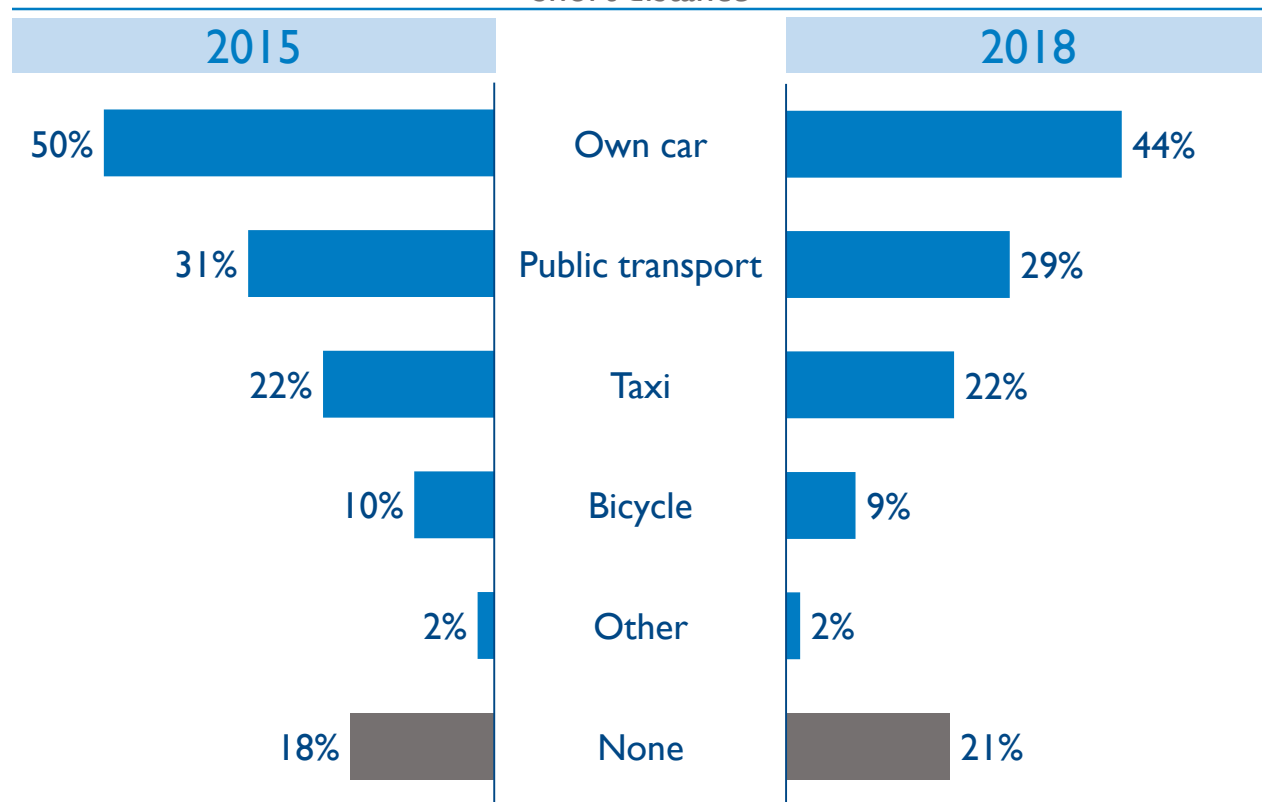
Question: Would you use cars that were fully autonomous?

Source: Arthur D. Little

Like in our last survey, around 30% of participants said they would (partially) replace public transport with autonomous cars

Transport modes replaced by autonomous cars

Short distance



Remarks

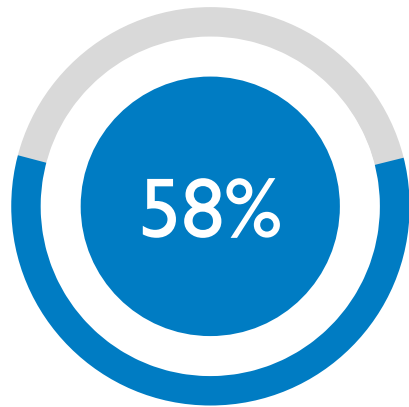
- No significant change in the last three years
- Autonomous vehicles would cannibalize the same level of public transport – this is important for city developers and regulators

Question: For short-distance journeys in urban areas, if you used a fully autonomous vehicle, what form of transport would it replace?

In the meantime, slightly higher prices for alternative drivetrains are accepted by the majority

Willingness to pay a higher price
(for hybrid and electric cars)

Remarks

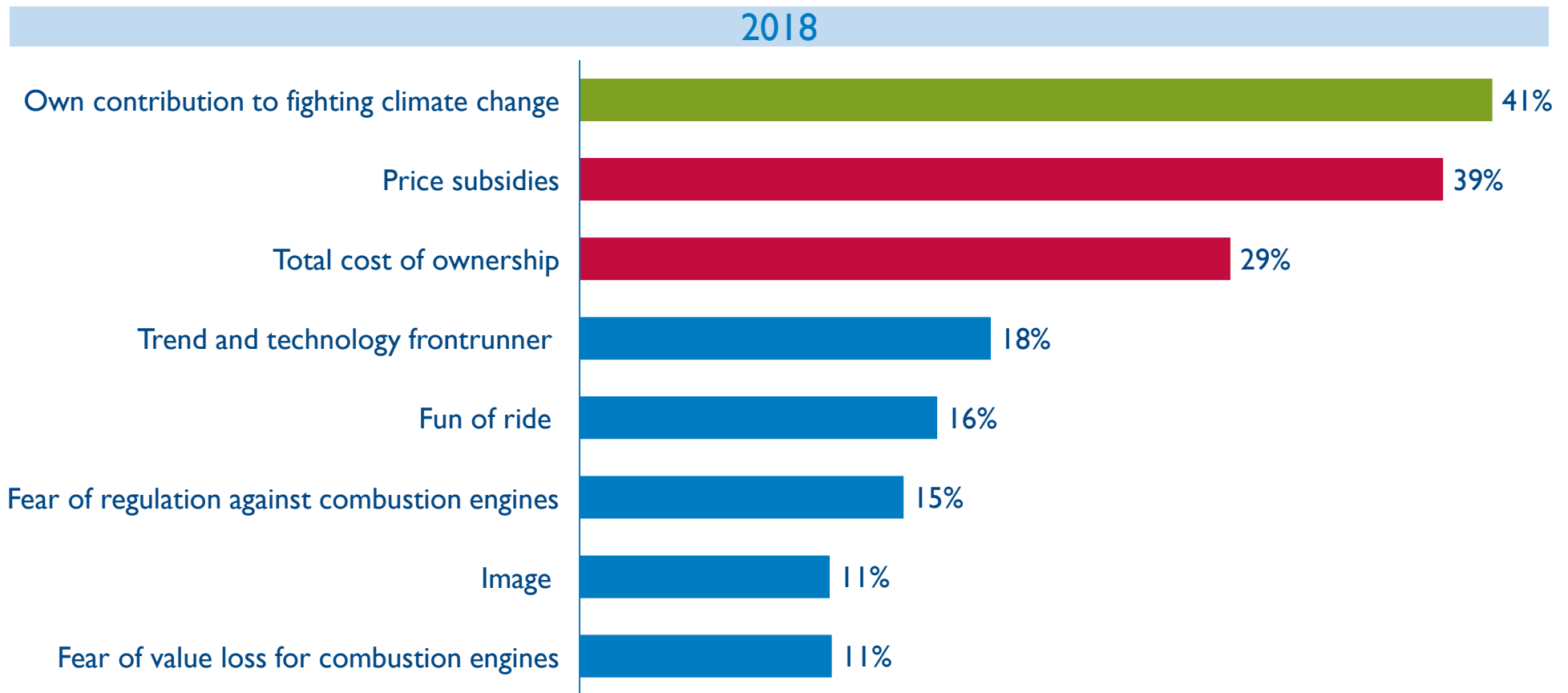


- At least 50% of consumers are willing to pay more for both hybrid and electric cars
- Higher prices for hybrid cars are still more accepted due to the same driving comfort as for cars with conventional drivetrains

People do think considerably “greener” – still, price and cost are dominating drivers for them to purchase electric vehicles

Reasons for purchasing electric cars

Question: What are the factors that encourage you to purchase an electric car?

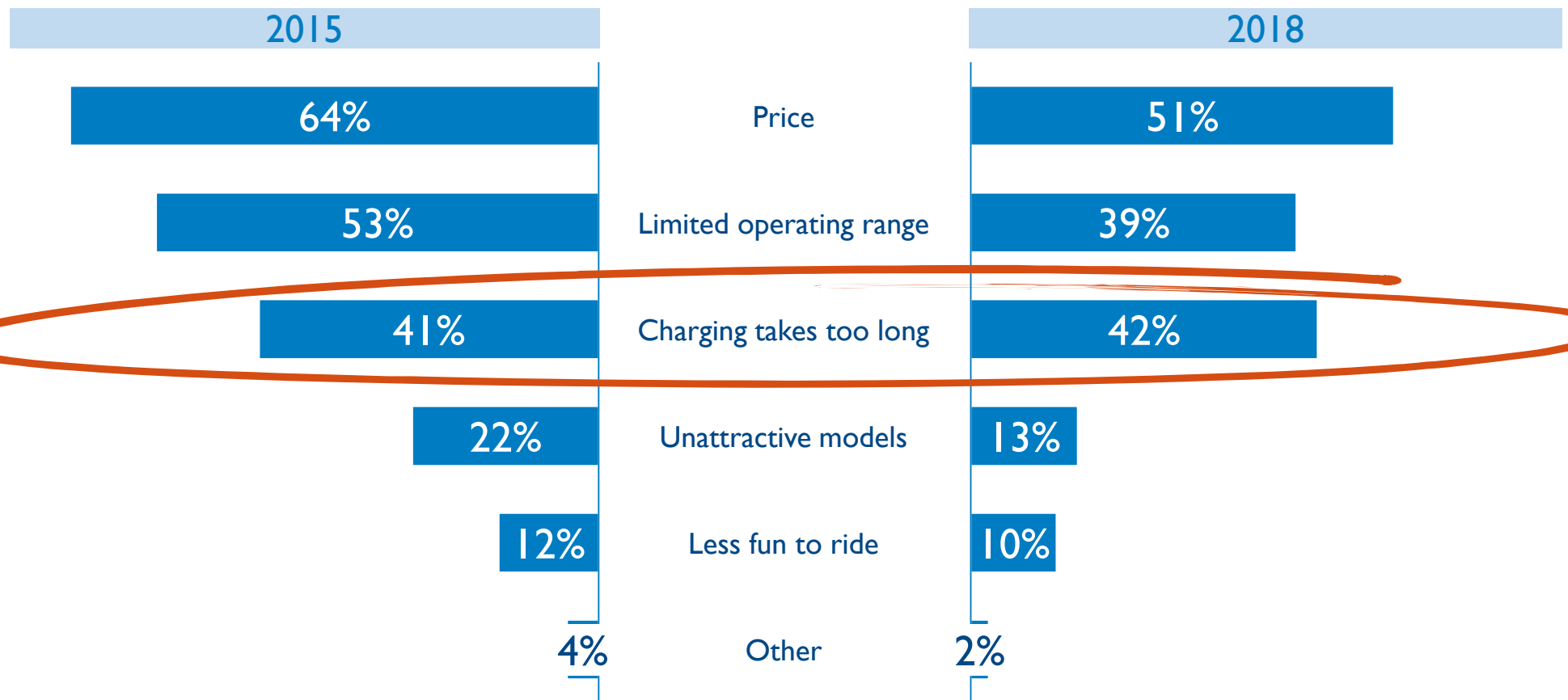


Source: Arthur D. Little

How 2015 barriers to the purchase of electric cars have changed

Barriers to purchasing electric cars

Question: What are the factors that discourage you from purchasing an electric car?

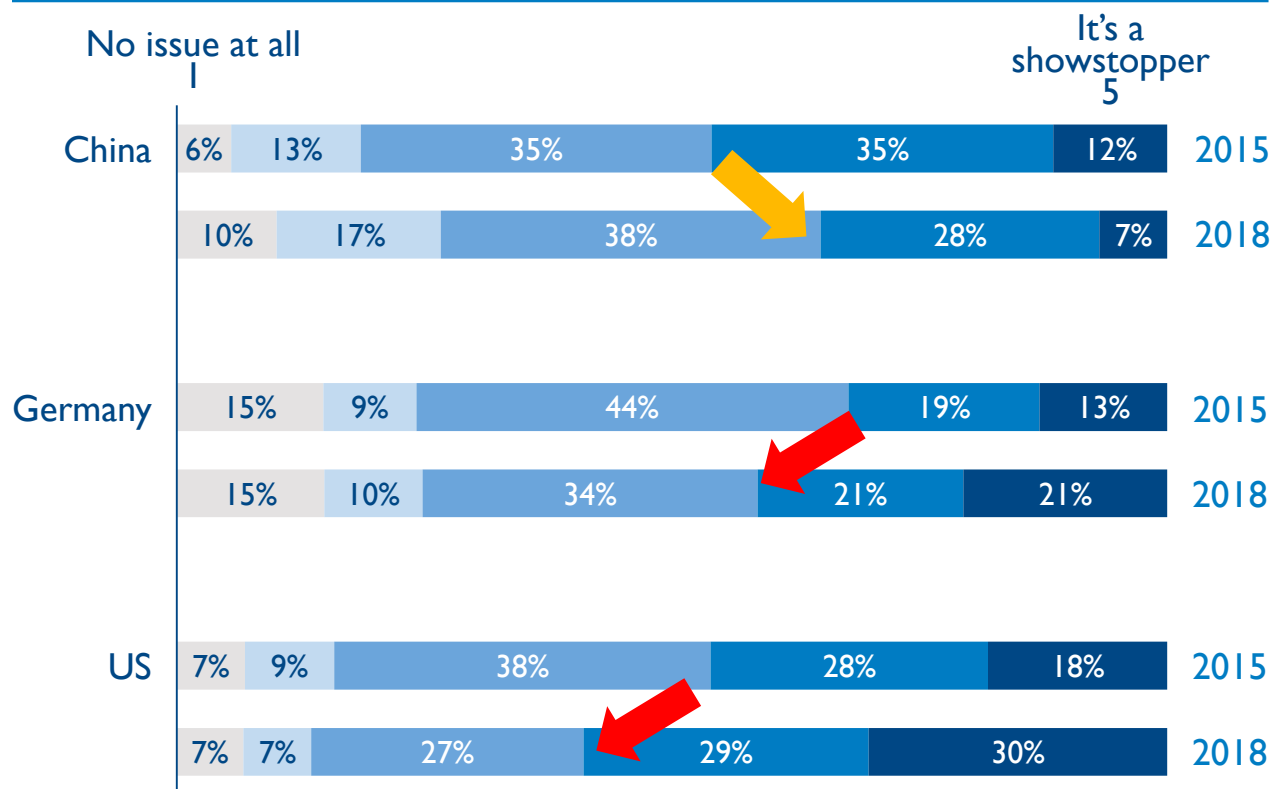


Source: Arthur D. Little

Public discussion has reached mobility customer preferences – security of private data is starting to become an even hotter topic!

Security of private data

Concerns about the security of personal and private data in selected countries



Remarks

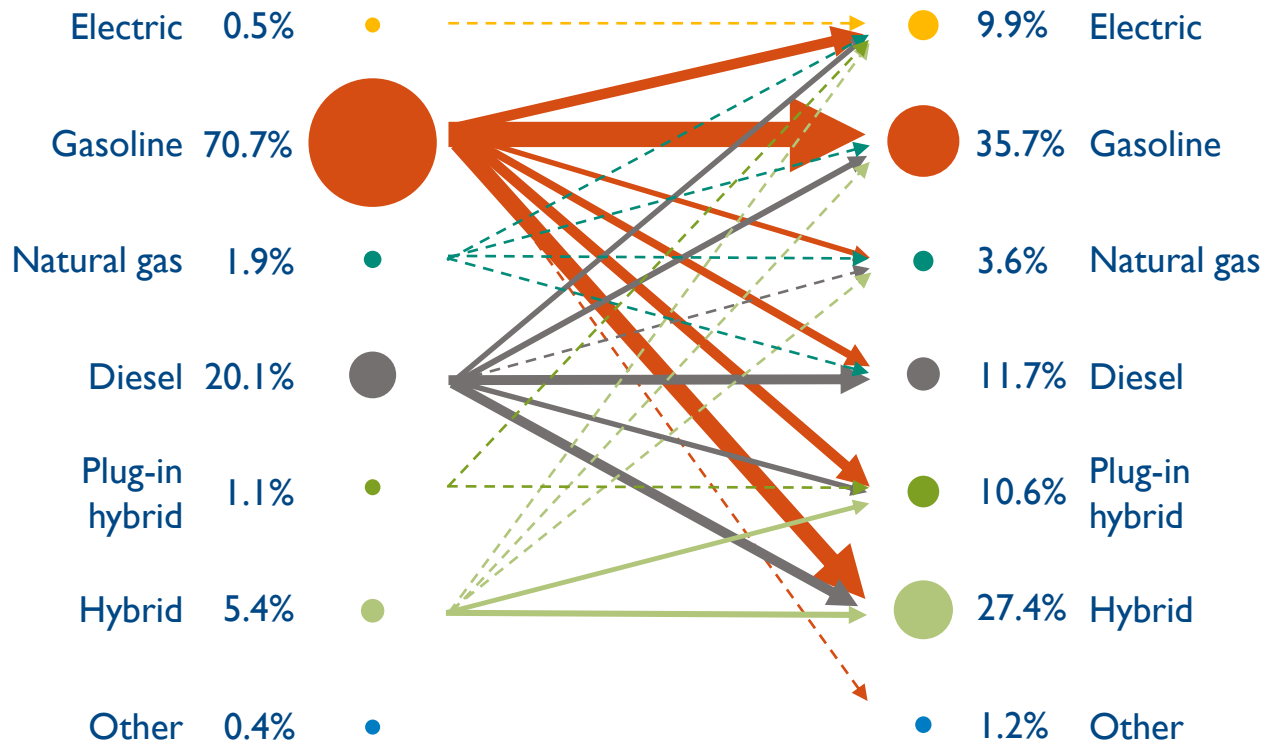
- People in Germany and the US have become significantly more concerned with the security of their private data
- The opposite can be seen in China, where people seem to be less concerned – probably through day-to-day experience. Are they getting used to it?

Question: How concerned are you about security of your personal and private data with regard to autonomous driving?

The change in customer buying behaviors regarding the drivetrain is going to be dramatic!

Replacement trend

Current and expected drivetrain, respondents intending to replace car within 1 yr



Remarks

- The massive dominance of pure combustion engines, and gasoline engines in particular, is likely to decrease significantly
- A surge in sales of battery electric vehicles (BEVs) and hybrid solutions is expected
- Hybrids are expected to be key for the next years
- Only a small number of people expect to change to natural gas drivetrains or other alternatives (such as fuel cells)

Questions: What type of drivetrain does your car have? When do you expect to replace your car? What type of drivetrain will you likely choose?

Source: Arthur D. Little

Note: Width of arrows is only indicative of size, and the smallest movements have been left out

Arthur D Little

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