

# The Road Ahead: The Future of Mobility

avis budget group





# Contents

- 1 Introduction
- 2 What does mobility currently look like?
- 3 What do consumers want?
- 4 What do business travellers want?
- 5 Bridging the gap
- 6 What is Avis Budget Group doing?



Keith Rankin, President  
- International  
Avis Budget Group

## We're glad you are listening....

For anyone wanting a glimpse of what mobility will look like in the future, cities in Europe are a great place to start. From Milan to London, from Paris to Oslo, a gradual mobility revolution is taking place; many cities are now host to car free zones, emission charging zones and autonomous vehicle trials; car sharing, bike sharing and scooter sharing schemes are becoming ubiquitous and many people in cities - including families, solo travellers and commuters - are wondering if their next car will, in fact, be no car at all.

However, inner city dwellers are at the cutting edge here. Most have had non-car options in the form of trains, metros, taxis and buses for some time. But what has changed is that inner cities have gone from being viewed as exceptions to the car-owning rule to harbingers of a future where private car ownership is no longer the norm.

Here at Avis Budget Group, we view ourselves as very much part of this future. On average, every second of every day, someone rents a vehicle from one of the Avis Budget family of brands. We see that customers' expectations around cars are changing rapidly and that new technologies are changing people's relationship with mobility, how they access transport and how they organise their journeys.

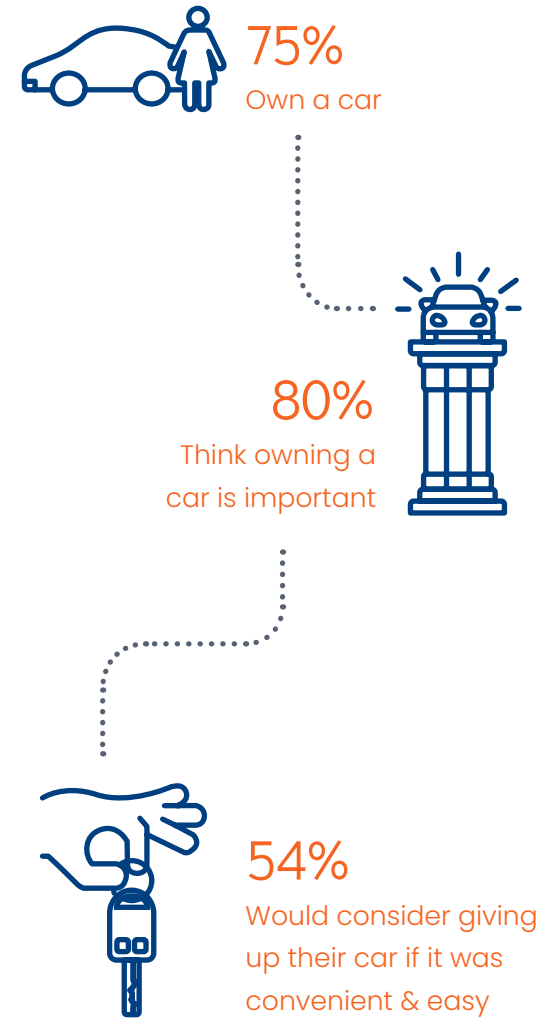
This report examines the way in which the mobility landscape is changing, how it is likely to look in the future and, crucially, how people in different countries view these changes. We have conducted research across 16 countries in Europe and Asia to look at the attitudes and inclinations of people regarding the way they currently move from point A to point B and the new technologies that will impact the way they do this in the near future.

# A Step Change In How We Get Around

The way younger generations live and get around is often very different to their parents, with considerations such as the environment and smart infrastructure climbing up the agenda. The kind of changes that once took a decade now take a few years. Perhaps, soon, they'll take just months. The future gets faster every year.

Even so, mobility is an area with a lot of legacy issues. If we take a few headline figures from our new research, they tell an interesting story. We found that 75 percent of respondents own a car and that 80 percent of people think that owning a car is important. These are the kind of results you might expect.

However, 54 percent of respondents said that they would consider giving up their car if doing so was convenient and easy. This is unexpected and even remarkable. It means that over half those surveyed would be prepared to move to, at the very least, non-traditional modes of car use.



# Car Ownership In Decline?

What is more, only 31 percent of people think car ownership will be the most popular way to access a car in the next decade. This is quietly amazing. It suggests that over two thirds of people, whether they want to give up car ownership or not, think that it's going to happen. They expect the future of car access to be a non-ownership model.

These headline figures mask a wealth of complexity and an ecosystem which takes in everything from cycle paths to government regulation to big data and long-term demographic changes. It's a complex, multifaceted area. We suspect this is one reason why people looking at the future of mobility tend to focus on the long-term, where electric driverless cars ferry consumers around and traffic moves freely overseen by a benevolent artificial intelligence.

We are far more interested in the near future and what happens next. We believe that we are very close to a tipping point where vast changes in mobility will take place in a comparatively short space of time. Even so, the full driverless utopia is likely to be some way off yet. What we will do in this report is

look at changes which are taking place now and will take place in the next few years. We will then ask how companies like Avis Budget Group and other players in the wider mobility ecosystem can put customers at the heart of their plans and how we can all work together to deliver the mobility services customers want tomorrow.

Keith Rankin, President - International  
Avis Budget Group

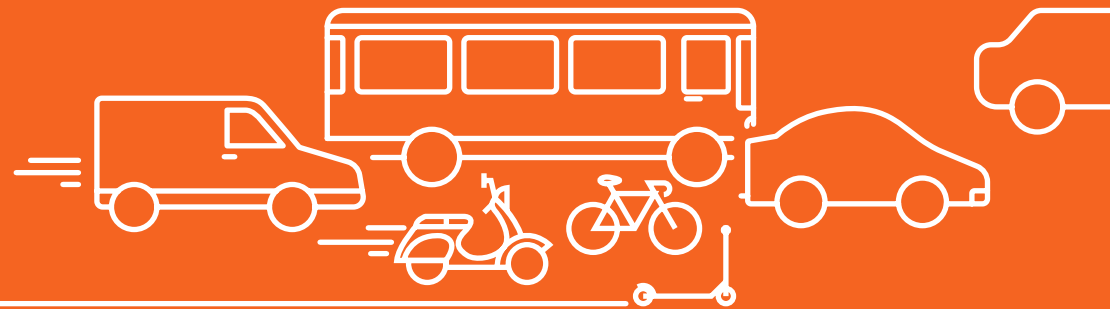


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# What Does Mobility Currently Look Like?

For most of the second half of the 20th century, the relationship between consumer and car was fairly straightforward. Motor vehicles became most people's primary means of transportation and took over our cities and towns. If more infrastructure was needed for cars, it was built, often with little thought given to the rest of the environment.

But around 30 years ago this started to change in cities. London is an obvious example here. In 1990, around 50 percent of journeys in London were by car. This was the peak and since then the proportion has declined steadily. Now the figure is closer to a third. During this period, we have seen a renaissance in cycling, considerable investment in public transport, a low emissions zone and the advent of ride-hailing and car share schemes.





## Cities Point Towards The Future

It's likely that these changes are just the beginning and European cities are the shape of things to come. We are at or close to a revolution in our relationship with the car. What is driving this change?

There are a number of contributing factors. Some are social - for instance, across the world, in both developed and developing countries we have seen a renaissance in urban living. Around the world, life is becoming more urban.

Almost 75 percent of our respondents (who come largely from developed countries) live in cities. This fits with the current global trend towards urbanisation. According to the UN, 54 percent of the world's population currently live in urban areas; by 2050 this figure will be two thirds. In most developed countries these figures are already considerably higher, typically around 80 percent. Urban areas globally tend to have far better public transport infrastructure than rural areas. The rise of urbanisation, therefore, means that growing numbers of people - and especially younger people, are now used to taking public transport and not driving. They see a reliance on public transport as pragmatic and normal rather than a choice of last resort.

Urban dwellers are interesting in other areas too. The distances they travel tend to be shorter and will often involve multiple modes of transport such as bike hire and taxi or tube and car share. They take whatever works best to help get them from a particular point A to a particular point B. Cars are not necessarily the obvious first choice for such trips in the way that they might be for a 20-mile commute from a town to an office park or within the confines of a suburb.

A person is shown from the chest up, wearing a dark denim jacket, holding a smartphone in their right hand. The background is a blurred city street at night, with various colored lights (red, green, white) creating a bokeh effect. The overall scene suggests a modern, urban environment where technology is being used.

## Driven By Technology

Perhaps the single biggest factor leading the transport revolution has been technology. It hardly needs stating how much app-enabled ride hailing has changed the mobility landscape in the last ten years. Moreover, these changes are ongoing. Car sharing schemes now offer a serious alternative to ownership for urbanites in selected cities. According to a 2018 ING report entitled *Car Sharing Unlocked*, almost seven percent of Europeans with a driver's license say that they use car sharing while nearly a quarter would consider using it. (2)



# Autonomous Vehicles, But Not Just Yet

In the early 2000s Google started mapping our cities – and the tech giant now gives us turn-by-turn directions in cities as far apart as Cologne and Kuala Lumpur. Look further ahead and technologies such as Google Maps will undoubtedly form part of the technological platform which supports semi-autonomous (and eventually fully autonomous) vehicles.

Self-driving cars currently exist as high-profile, headline-grabbing prototype vehicles made by the likes of Tesla. As a mainstream proposition, they are likely years away. However, many of the largest players in mobility are betting that the future will be autonomous – to the point that their long-term business plans depend on a massive reduction in human drivers.

Avis Budget Group's US national consumer survey has found a high level of intent to use autonomous vehicles especially amongst business travellers. More than 70 percent of business travellers would use a self-driving vehicle for travel to and at their destination as well as more than 60 percent of leisure travellers to and at their destination. This willingness to try autonomous vehicles is driven primarily by the belief that autonomous vehicles will make travel more enjoyable and relaxing.

Despite the buzz and excitement around autonomous vehicles, however, there is some evidence that consumers are not necessarily as knowledgeable about new types of vehicles as some of the headlines may suggest. In 2018, Avis Budget Group

surveyed 14,000 adults in 14 European countries revealing that almost half did not understand the definitions of 'connected' or 'autonomous' vehicles. There may need to be some education of consumers to highlight the innovations and technological advances that have been made if we are all to fully benefit.

Although this may be some way off, and work needs to be done to promote their key benefits, a future with more autonomous vehicles holds out the tantalising prospect of streets which have far greater capacity (autonomous vehicles can drive much closer to each other) and far fewer parked vehicles. According to the RAC Foundation report *Spaced Out: Perspectives On Parking Policy* the UK's cars spend over 95 percent of their time parked.



An aerial, long-exposure photograph of a complex highway interchange at night. The image is filled with vibrant light trails from cars, creating a sense of motion and energy. Overlaid on this scene is a network of glowing yellow lines and nodes, representing a digital or smart infrastructure. Three semi-transparent colored boxes are positioned in the upper left quadrant, each containing text. The background shows multiple levels of roads, overpasses, and underpasses, with some streetlights and lane markings visible.

Smart Cars

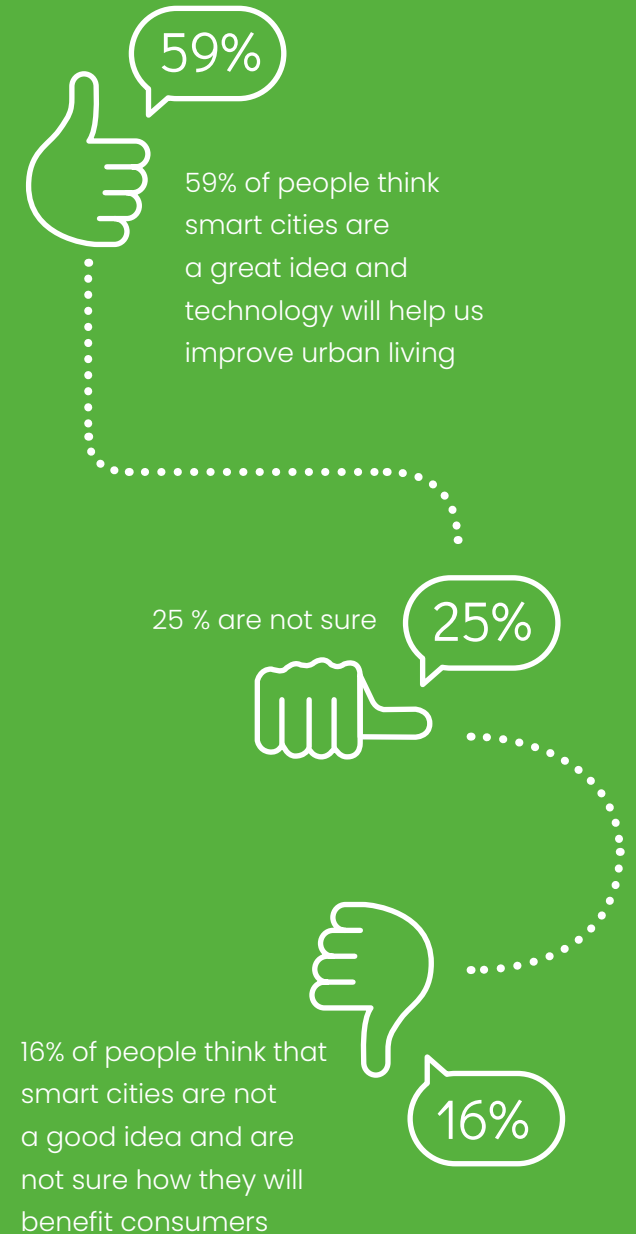
Smart Roads

Smart Cities

A smart city is a city that incorporates information and communication technologies (ICT) to improve the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs. The overall goal of a smart city is to enhance the quality of living for its citizens through smart technology.

Data and communications technologies also make complicated multi-modal journeys much easier where previously the planning would have been a real challenge. According to our research about 35 percent of travellers made "typical everyday journeys" which took in two or more modes of transport. It will be interesting to see if the spread of apps - which cover multiple forms of transport, results in a boom in multi-modal journeys.

Many of the technologies that will drive the future of mobility are linked to the urban renaissance and the kind of "smart cities" initiatives that aim to make our urban areas more livable even as they accommodate more people. This is something that our respondents are very positive about: almost 60 percent thought smart infrastructure a good idea that would make city living better and only 16 percent of respondents did not believe it was likely to improve urban life.



## Other Factors Driving Change

There are many other factors driving changing mobility. One is that people are increasingly aware of environmental considerations. Another is the changing views of city planners – they know that while mobility is hugely important, if they are to accommodate growth, they must create smart infrastructure rather than simply building more roads and parking spaces.

There is also the high cost of car ownership to consider. Perhaps surprisingly this is not something those people surveyed seem overly concerned about right now. This may be because it is already “priced in” to many people’s lifestyles – and there is the potential for greater awareness to make it a much bigger consideration when it comes to how people access cars in the future. If, for example, car sharing becomes common enough to be normal, car ownership may start to be viewed as an expensive luxury.

What would need to be in place for the long-term rental/subscription service for vehicles to be convenient and easy for you?





## The Greatest Revolution Since The Introduction Of The Car

Put all this together and the next few years in mobility could be looking at some of the greatest changes since the introduction of the car. Obviously, this holds out great challenges (and great opportunities) for those operating in and around this space. Those who want to succeed in the brave new world of mobility will have to move quickly and change their approaches to suit new markets and new consumer needs.

# 3

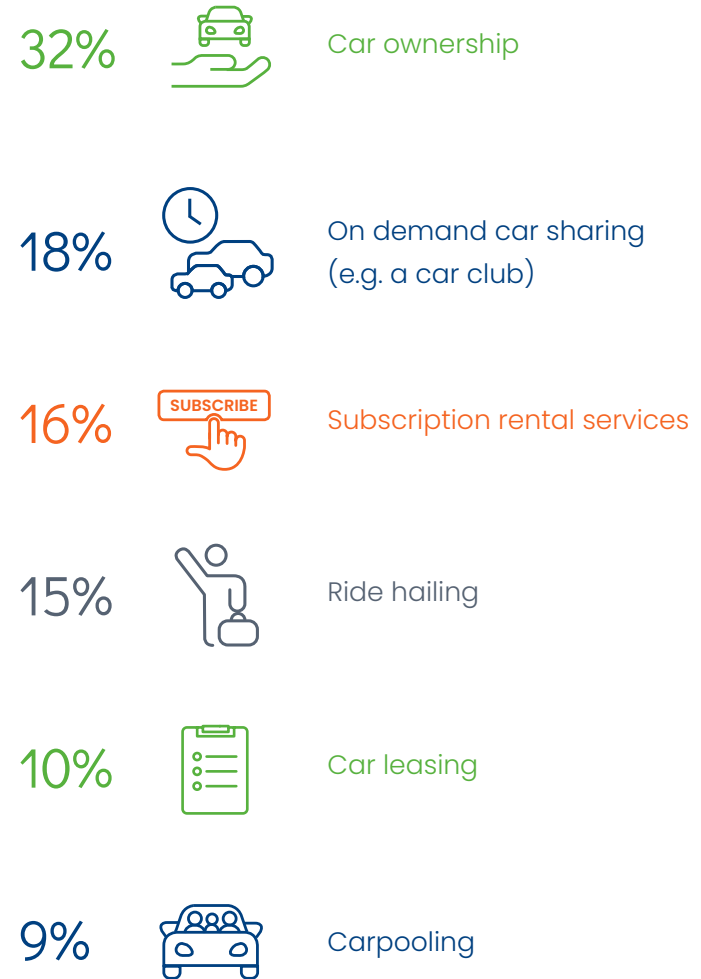
## What Do Consumers Want?

As explained earlier, one of the most interesting findings in our research is that nearly 70 percent of people think that, in a decade's time, car ownership will no longer be the most popular way to access a car. Consumers know the future will be different – the challenge for mobility providers is to deliver this future.



Even though they expect a different future, when it comes to mobility, consumers will still want what they've always wanted – convenience at a reasonable price. Three examples of this which are prominent in the mobility sphere are short-distance ride-hailing via apps, contactless payment on public transport systems and bike hire schemes the world over.

What do you expect to be the most popular way to access a car in the next decade?

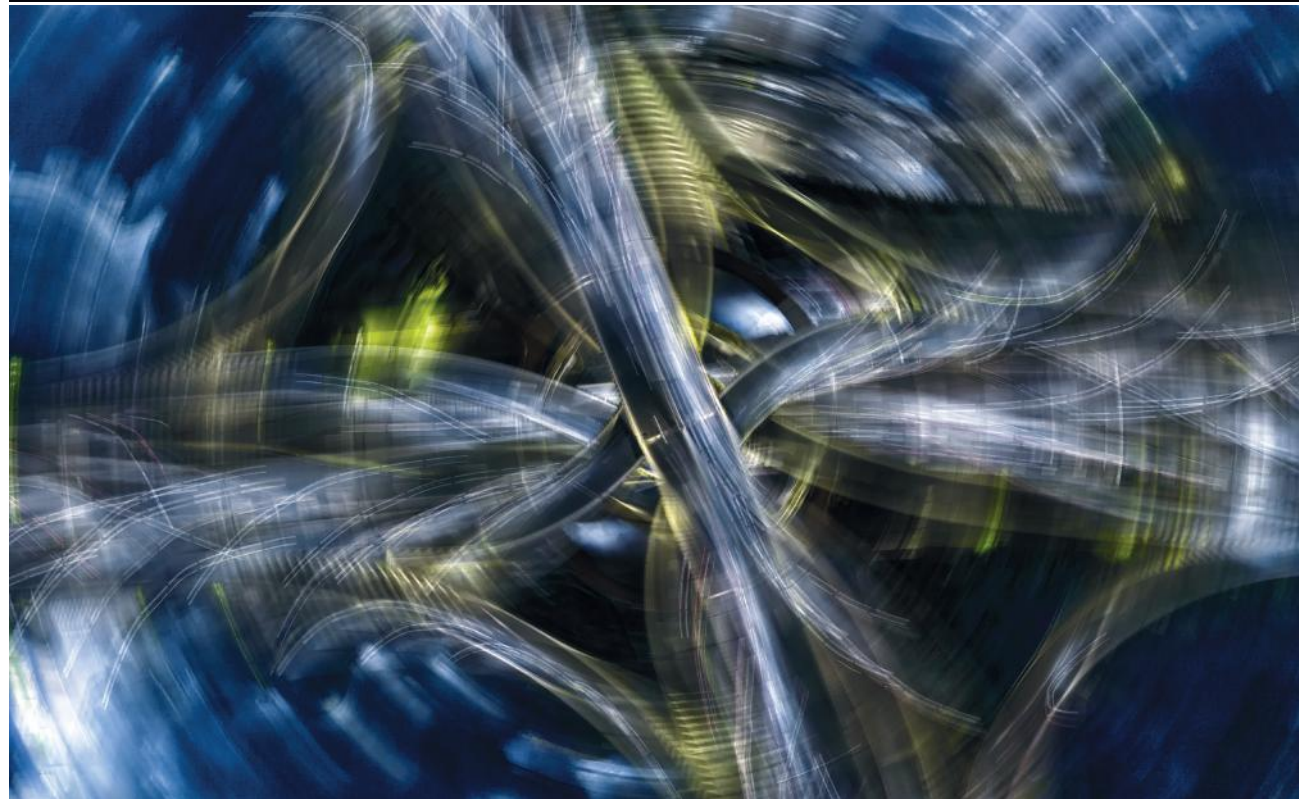


# Convenience Is King

With all three innovations, ease of use has driven take-up. According to a report by the group UK Finance, contactless transactions increased by 31 percent between 2017 and 2018. Stephen Jones, Chief Executive of UK Finance said: 'More and more customers are now opting for the speed and convenience of paying with their contactless cards...while on the move.' (3)

If we look at the classic model for technology spread (as defined by Everett Rogers in his 1962 book Diffusion of Innovations) in mobility we have moved beyond the early adopters and innovators and now well into the majority adoption phase. Technology-enabled mobility is now mainstream.

What is more, if the pace of technological change feels like it's accelerating, that is because it is. As Ray Kurzweil explains in The Singularity Is Near each generation of technology is used to design its successor and this makes change faster. Computers which were once designed by humans are now designed largely by other computers.







# Consumers Are Open To Change

Bill Gates famously predicted in 1980 that there would be a computer in every home. But the smartphone has now given us a computer in every pocket. With smartphone penetration at over 60 percent in many developed countries, we all use computers all the time.

The spread of easy to use technology, particularly the smartphone has created an appetite for trying new things, especially if they can be accessed via apps – as virtually everything can be these days. If you think about previous changes, such as changing from paper tickets to contactless cards, they often required real effort on the part of the consumer. Downloading a new app is far less effort – and people are already used to the app interface.

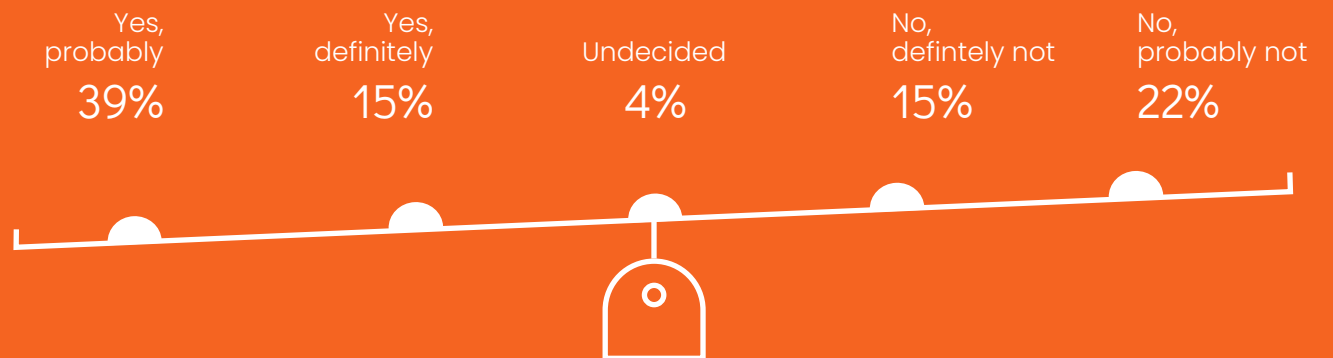
This idea that people are open to change in the way they access and use cars is backed up by our research. This shows that people still like their cars and consider car ownership important (80 percent). However, over half of respondents (55 percent) said that they would definitely or probably consider giving up their cars if doing so was easy and convenient.

There are some interesting disparities across markets here. Residents of Singapore are the second most likely to give up cars (22 percent of respondents would consider giving up their car). No surprise here – it is a compact country, which has excellent public transport and car use is expensive and restricted. However, the most likely country to give up car ownership for an alternative access

model is Italy (25 percent). By contrast, Germany (10 percent) and Austria (9 percent) lag a long way back in the international league tables. This suggests there are factors above and beyond the immediately obvious when it comes to giving up car ownership. Germans, for example, have a world-famous car industry and a strong driving culture and appreciation of quality engineering.

While there are significant differences across markets, there are also similarities. Across all markets surveyed, availability of access to vehicles (78 percent) was the biggest concern. In a related finding, just under a half of respondents (46 percent) cited repairs and maintenance being taken care of, both of these could be viewed as convenience factors.

Would you consider giving up car ownership and instead relying on a long-term rental/subscription service if it was convenient and easy for you?



# Trust And Reputation Still Matter But People Like Tech

Almost a third of respondents (32 percent) said they would like the vehicle they access to come from a trusted brand or company. A similar number (33 percent of those surveyed) said they would be open to new car and van rental schemes if they were ubiquitous in the local area.

Generally, however, attitudes to both technology and mobility are very positive. Two thirds of respondents expect driving to become much easier, while 59 percent predict that there will be more ways to access vehicles and a little under half (44 percent) expect technology will make their driving experiences better. This is undoubtedly a big factor in new mobility providers' favour. Customers expect technology to work and be user friendly and are willing to try new things.

Which of the following best describes how you feel about the technological advances in vehicles and for vehicle hire?

Uncomfortable with how much data will be available to brands / companies about me

I'm happy with things as they are

Unsure as to how technology will make my driving experience better

Excited about the opportunities to personalise my driving experience further

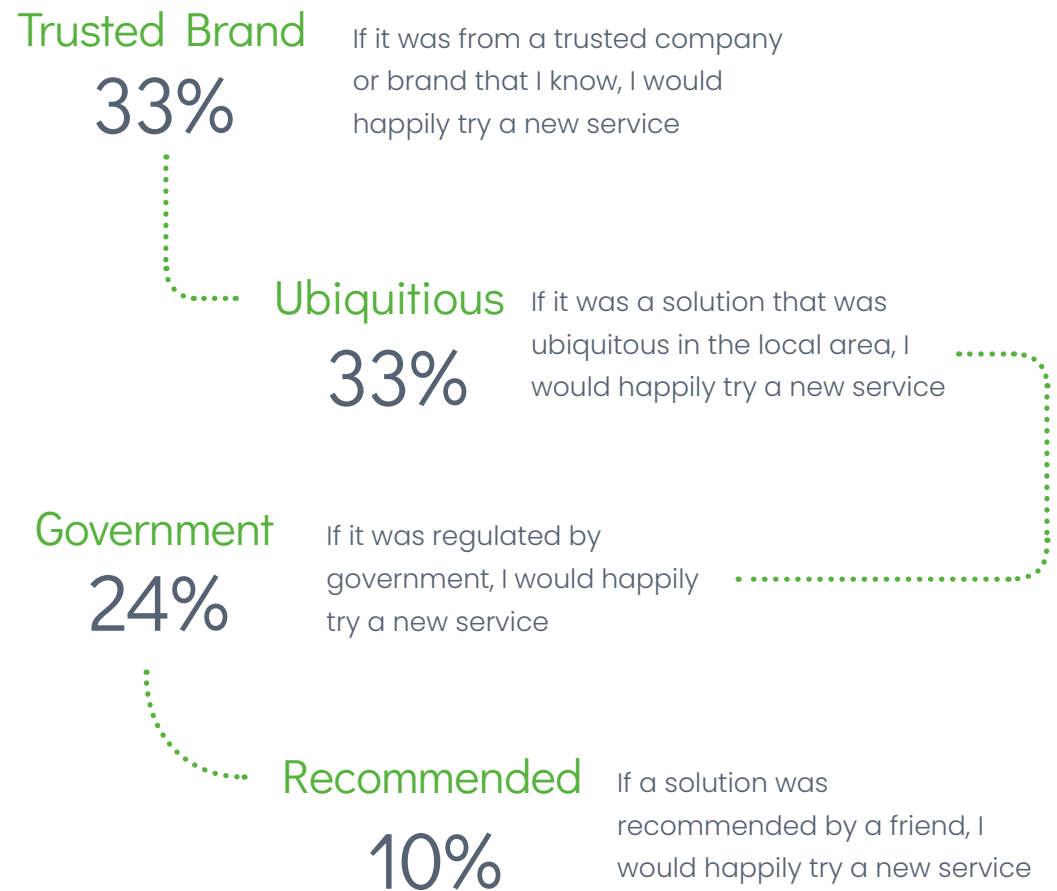
I expect there will be more subscription & on demand services for cars and vans over the next few years

I expect driving to become much easier in the next few years



Finally, word of mouth is also a consideration. When trying something for the first time, endorsement from someone you trust can help.

Would you be willing to try out a new way of accessing a car/van etc. Like a subscription model... Please select the one statement below that most resonates with you?



Money is obviously a big factor. But, as noted earlier it's a factor that throws up rather contradictory responses. Only 43 percent said that cost was an important consideration in giving up car ownership, yet almost two thirds (65 percent) said that "saves my wallet" could be a motivating factor. As mentioned earlier, a likely explanation for this apparent contradiction is that car use is deeply embedded in many household budgets and is often not viewed as a discreet cost.

## What would motivate you most to give up ownership of your own car?



Saves my wallet – if it would be more cost effective for me not to have the running costs and maintenance of a car **65%**

Better public transport – if there were better public transport links where I live



**21%**



Environmental factors – I'm deeply concerned about pollution and what car ownership does to our planet **10%**

Status symbol – I'm not bothered that a car is seen as a symbol of my status amongst family and friends



**4%**

Do you ever wish you could change your vehicle for any of the following occasions?

Yes I do for...



Summer holidays

40%



Weekend break

29%



Moving home

28%



City Driving

25%



Commute

18%



Winter holiday

15%



School run

5%

## A Different Car For The Weekends

There were some other unexpected responses too. Across all markets, 30 percent of people surveyed take two to three different modes of transport a day. The environment scored surprisingly low as a motivating factor in giving up cars, with only 10 percent of respondents citing it as important. However, 59 percent said that smart infrastructure (i.e. using data and communications technology to improve journeys) was a great idea to help improve urban living, something which will doubtless come as a very pleasant surprise to those working in smart cities schemes around the world.

Another intriguing response suggests a sophisticated awareness that a new approach to car access is likely to have benefits beyond the very obvious. Here our survey showed that there is an appetite for being able to change your vehicle easily. Respondents said that they'd like to be able to use a different vehicle when moving house, or taking weekend breaks – and almost 40 percent of respondents said they'd like a different car for summer holidays.

40% would like a different car for summer holidays

# Privacy Is An Issue – But Not A Deal Breaker

Finally, there is the question of privacy. Here respondents were split. Fifty four percent of respondents said they were either very or quite comfortable for their driving data to be analysed to improve infrastructure services. By contrast 29 percent and 19 percent said they were quite or very uncomfortable. Again, this echoes a lot of other research. People are, in the abstract at least, – concerned about privacy and the use of their data. But practically speaking, if you provide them with a convenient and easy to use service, they forget about these concerns. Tellingly, over half of respondents already use driving apps such as Google maps at least once a week.

Overall then, we have a picture of consumers who still like cars. However, they are positive and open to a future in which car ownership and access look quite different to how they do today. Moreover, they expect cars to be part of a kind of mix and match buffet of transport options which will be accessed via apps and that journeys will be planned using technology. They know the world is changing and they expect to be part of that change.

Thinking about smart infrastructure and the need to make your travel experience better, how comfortable are you for people to access your data and share it?



Very comfortable - If it means my travel experience is better 19%

Quite comfortable - It means they can only access some of my data to improve my travel experience 33%

Quite uncomfortable - I'm not sure what they will do with my data 29%

Very uncomfortable - I don't want anyone having my data 19%





# 4

## What Do Business Travellers Want?

The end users of business travel – the business people themselves – want broadly what consumers want. Convenience, speed and reliability are paramount, but they also want to be as productive as they can on the road. Cost does not figure in the same way as they are not paying themselves.



A 2018 Egencia (5) survey found that “Travellers are motivated to book convenient options, which allow them to save time and show up rested.” For business travellers, the streamlining of the travel experience and the ease of use that apps provide have already been significant pluses.

Similarly, being able to navigate unfamiliar cities with ease has greatly improved the business travel experience. The way that many apps electronically store receipts and allow on-the-move expense management also cuts down on hassle. Egencia found that business travellers wanted control – and the growth of in app-enabled business travel and the ability to pick and mix from a selection of options (in mobility as well as other areas) is a big enabler of this.



# Greater Convenience For Business Travellers, Less Admin For Companies

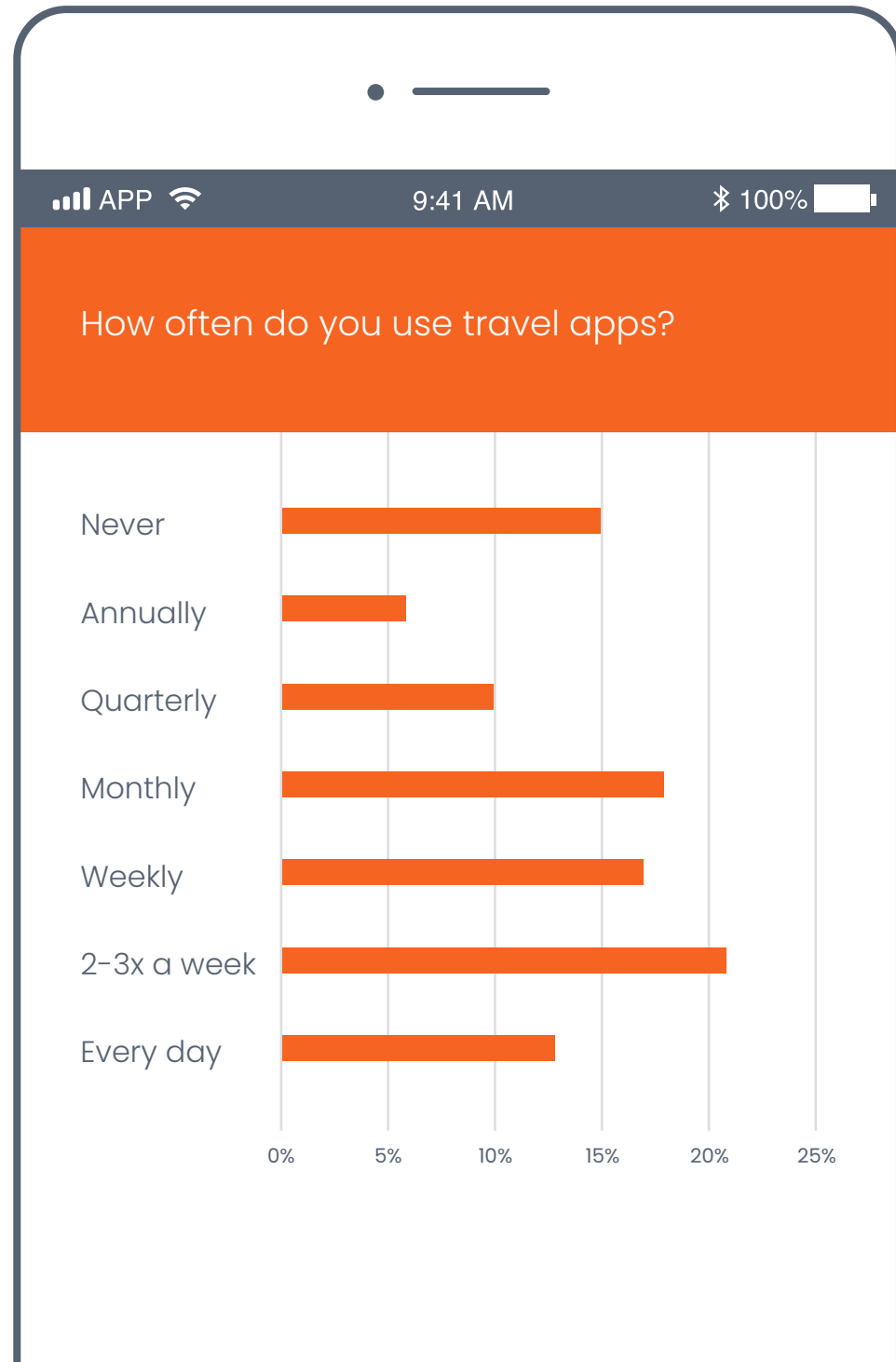
Business travel bookers want all this too – with lower costs. Fortunately, the future of mobility is delivering these. It does so in a number of ways. One is by making transport options far more on demand, so you pay for what you use. For instance, if a business traveller needs to drive from an airport to an office which is far from a city centre they can use a car share service. This means an easier experience and a cheaper one – as they pay only for what they use. They can also go multimodal or catch a lift back because they can simply leave car-share cars when they've finished using them. They have flexibility and control. The second big way that technology and app-enabled travel helps business booking departments is by vastly reducing administrative overheads. It does this by automating processes (such as scanning receipts or storing itineraries) or simply outsourcing them to other providers. Increasingly, providers are partnering which means apps are doing more and bringing ever-greater levels of convenience. Finally, the new world of business travel makes it far easier for companies to collect and mine data on their travellers, delivering efficiencies and money-saving insights.

New US data from Avis Budget Group indicates that US business travellers more often use mobility alternatives (17%) than leisure travellers (11%). The alternative used most is ride-hailing, according to the Avis Budget Group USA consumer survey. Most ride-hailing trips are to or from airports, for longer trips within a city, or from city to suburb.



Again, this a future which is likely to accelerate. Apps increasingly work across whole ecosystems of providers, processing of information is done in real time and in the cloud and everything you need is accessible via your phone.

The line between business technology and consumer technology has blurred considerably over the past decade. This is down to an interesting technological shift that began around 2008. Prior to this, consumer advances were mostly driven by business technology. However, with the advent of the smartphone, this reversed – and consumer technology now sets the pace.



# 5

## Bridging The Gap

The great challenge for all the players in the mobility space is to bridge the gap between where we are today and what consumers and businesses want tomorrow. If you look at cities such as Milan (which is a world leader in car sharing) considerable progress has already been made. Early steps such as this may go some way towards accounting for the surprisingly large fraction (almost 60 percent) of our respondents who said smart infrastructure is a good idea. Indeed, in Italy the figure is close to 70 percent.





However, in other cities around the world, the gap between where we are and where we want to be is far wider. In many traffic-choked metropolises the dream of future mobility looks like it may never come true.

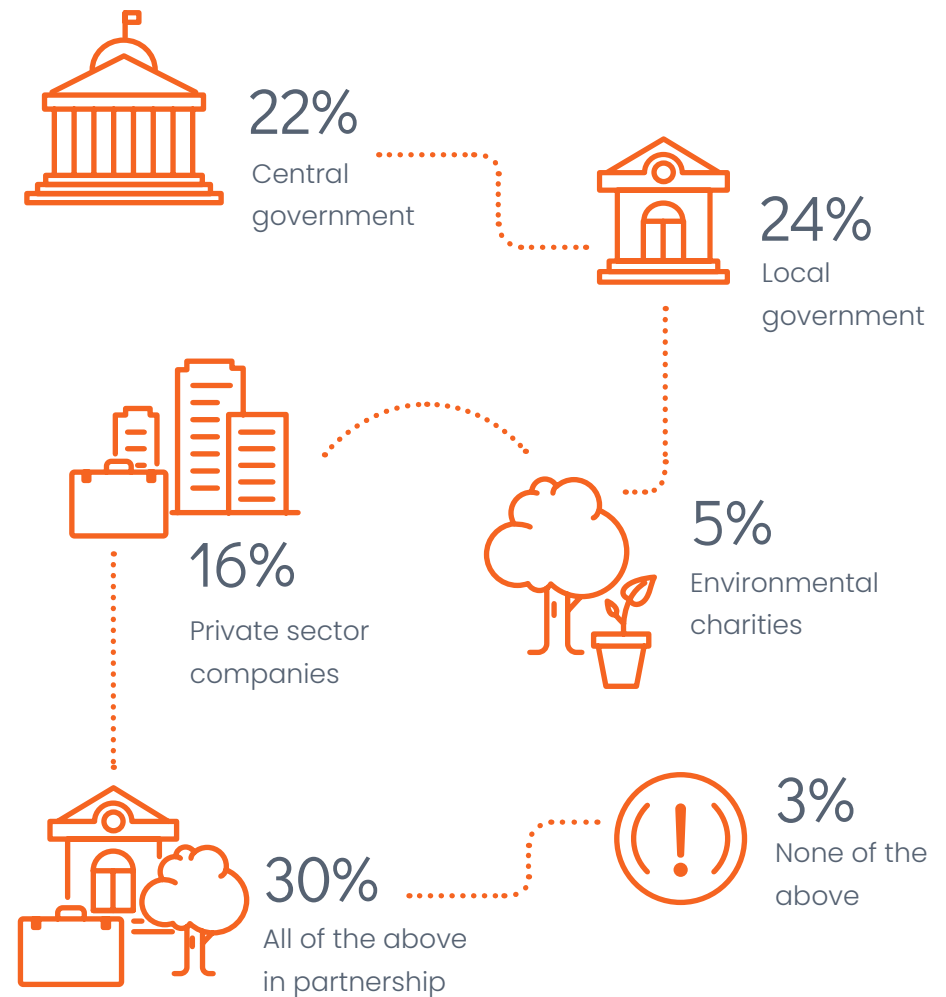
Indeed, even in the developed world, many cities and countries lack the physical or digital infrastructure to enable mobility businesses to provide the services people will want in the future. Streets may already be seriously congested and have been designed long before cars existed. Laying new digital infrastructure such as the fibre-optic backbone of modern telecommunications systems can be very difficult, as can retrofitting existing systems. Getting legacy systems (which are often siloed technologically, legislatively and administratively) to work together and to work with new technologies is an enormous challenge. Future systems such as charging infrastructure will place similar demands on cities.


# Who Pays For The Future?

There is also the question of who pays, especially for initiatives like smart infrastructure. Taxpayers may be unwilling to foot the bill for new schemes, especially if they promise to deliver years in the future. On top of this, there are also cultural challenges. Changing public behaviour is difficult, especially if you are asking people to move away from a possession which has been an aspirational part of society for a century and which many people identify with. In different ways, these issues exist in cities as diverse as Lagos, Lisbon and London.

One hopeful sign here is that 30 percent of our respondents expected smart infrastructure to be developed by a range of stakeholders working together and ranging from private companies to government to environmental charities.

Thinking about improving transport infrastructure, who do you think is best placed to develop it to suit the needs of consumers?



An aerial night view of a modern city. The image shows a complex network of roads, including a large interchange and several smaller junctions. The roads are illuminated with warm yellow and white lights, creating a glowing pattern against the dark night. Green spaces, including trees and parks, are interspersed throughout the urban layout. The overall scene is a vibrant and futuristic representation of city infrastructure.


We can already see what some of the early steps might look like. Existing infrastructure such as streetlights can be used to host smart infrastructure. Many cities are also looking at initiatives such as revenue sharing (a smart initiative may either generate profits or save money), monetisation of data and instruments such as smart bonds.

The cloud and the increasing movement of processing power to the cloud is making it far easier to integrate legacy systems. This goes a huge way towards dealing with the technological problems associated with old infrastructure. Once you would have needed experts familiar with older computer languages and technologies and armies of people to manually sort and input unstructured data. Increasingly this is no longer the case.



# Signs Of Change, From London To Kigali

Car journeys are not always rising, either. In London, as already mentioned, they have famously fallen since 1990. But other cities show possibilities too. Car ownership in New York is half the US average. Singapore froze the number of cars on its roads in 2018. And Madrid recently banned older cars from its centre



New York car  
ownership is 50%  
of US avg.

“Today you rent a car and you pick it up at an airport or in-city location. Tomorrow, you could tap your app when you want a ride, and the car comes to you. When this happens, there will no longer be any need to own a car if you live in a city. Just think of how different a city could be without parked cars on every street; without large parking lots or garages; without snaking lines of traffic.”

Arthur Orduna  
CIO, Avis Budget Group




Even in the unlikeliest places we are seeing slow steps in the right direction. One of the great technological success stories of the last decade has been the mobile phone-based digitisation of Africa, to the point where a Kenyan farmer is more likely to be on WhatsApp than an American is.(6) This has filtered through to transport and nowhere has greater progress been made than in Rwanda. Here, there are cashless buses which use smartcards and Safemotos, an Uber-like service for motorbike taxis.

On a global level, we are seeing the slow rise of electric vehicles. Of course, these will not eliminate gridlock but they will start to massively reduce pollution (and noise) in cities themselves. If the electricity can be generated from clean sources they will help eliminate pollution too. Intelligent charging of cars can help with this – most cars are parked almost all the time and so are well placed to take advantage of whatever clean energy is going. In fact, with the right technology, car batteries could become part of the grid.

This is a way off, but we already have shared vehicle schemes where an app allows you to find vehicles on nearby roads. These have proved popular and, just as importantly, they serve to normalise the idea of cars on demand being a widespread thing. For a lot of these services, critical mass is very important, both in terms of usability and quality of service and public perceptions. Most people are not early adopters who want to try new things.





## The Near Future Is Shared, The Far Future Is Driverless

Looking further ahead, it seems likely that these vehicles will soon be intelligent enough to come to your door, further increasing convenience and levels of acceptability. In the longer term, significant take up of car share schemes and a fall in ownership also has the potential to make streets far less congested – as fewer owned cars will be parked. Intelligent shared cars will be in use for more of the day and sitting idle for less time than owned cars. This will mean fewer cars clogging up streets. When you park your shared car to go shopping, it will be picked up by someone else within a few minutes. In London alone, Zipcar's one-way Flex car sharing service has seen over one million electric miles driven in its shared electric fleet since July 2018 as consumers turn to access over ownership.

In the short-term, to drive the take-up of shared vehicles (where drivers pick cars for single journeys, usually via their phones) some infrastructure may be needed. This could include dedicated spaces and even car parks in high use areas and will need to be done in conjunction with local governments. Shared car fleets are also likely to be some of the first electric cars and this will require more charging infrastructure. If, as expected, electric vehicles eventually take over, this will require significant redesigns of local electricity grids.

1,615,024  
electric miles  
(since July '18)

# New Technologies And Big Data Everywhere

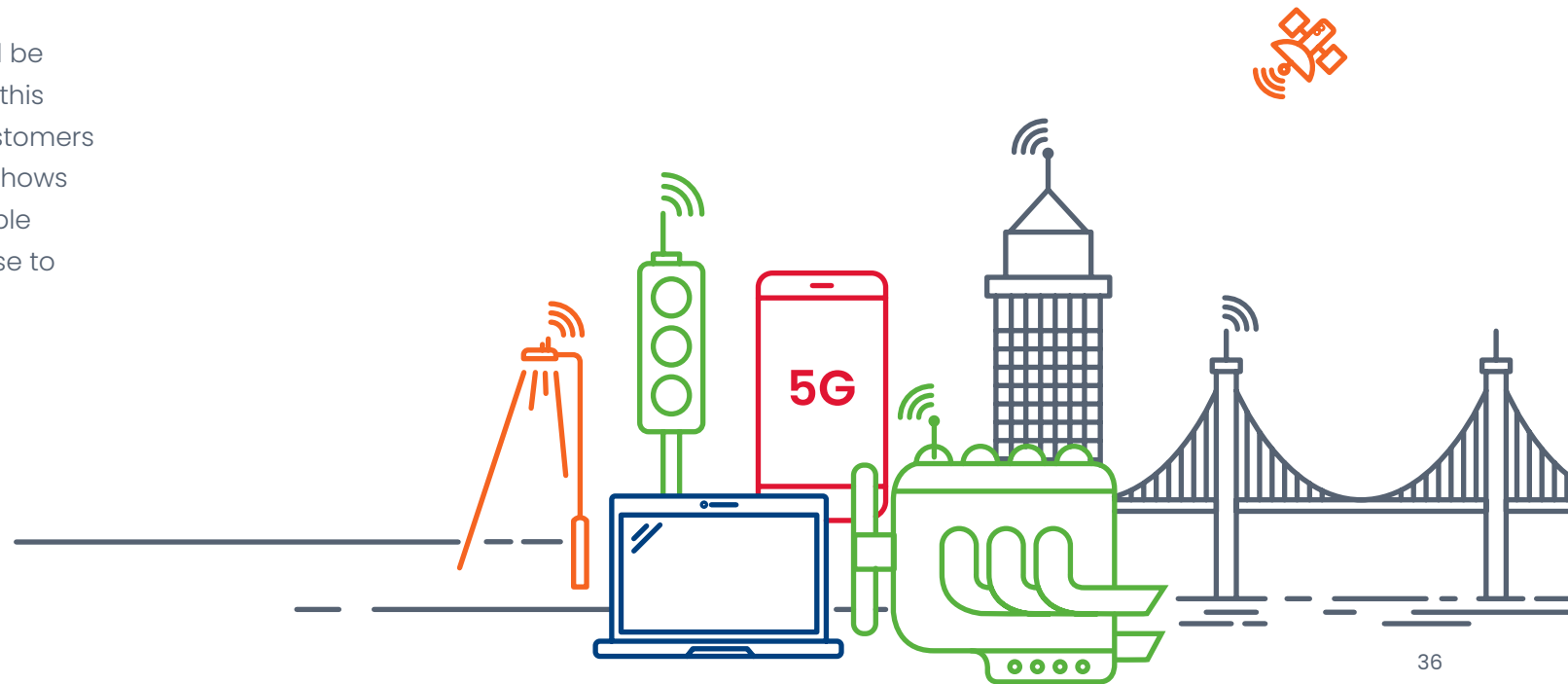
Technology will help in other ways too. 5G is now being rolled out around the world. It is tempting to think of 5G as just an extension of 4G but in fact, it is far more than that. 5G is the technology which will turbocharge the Internet of Things. It will mean everything is connected and communicating constantly – this will include cars, roads, bridges and so on. 5G will also mean vastly more data is connected and many more informed transport decisions can be made in real time.

For mobility companies, this data will be invaluable. They will be able to mine this data to gain insights about what customers need and want – and our research shows the majority of people are comfortable with this. They will be able to use these to

drive efficiencies, improve service and even reduce pollution. Networks will constantly be learning and adapting to changing environments, customer needs and market forces. Of course, they will also have to ensure they address customer concerns around privacy and ensure they comply with data protection legislation. However, 53 percent of respondents said they were either very or quite comfortable with their data being used to improve journeys.

53%

of respondents said they were either very or quite comfortable with their data being used to improve journeys



# Working Together To Deliver The Future

One of the most interesting points around bridging the gap is the extent to which it will be a series of partnerships. There are dozens of players in mobility all of whom have strengths in different areas. Companies will need to view mobility as a holistic ecosystem and partner with organisations that best compliment them. This is likely to require deep levels of integration and collaboration – although if you look at industries like aerospace it is possible to achieve this.

As customers love simplicity this is likely to lead to new apps and collaborative platforms and revenue sharing plans.

Partnerships will not be limited to other businesses either. If you are to be part of a smart city scheme, you will probably be dealing with organisations ranging from rail companies to electricity providers (for charging points) to local and national governments. Businesses will need to look at how best to approach these entities and build working relationships with them. Factors such as regulation and insurance may need be considered. You only have to look at social media to see how technology has raced years ahead of legislation.

Interestingly, as already noted, a significant number of consumers expect the future to be delivered by multiple players. Moreover, the airline and holiday travel sector offer an object lesson in multiple players selling blended products via a single retailer.



# Where Does The Journey To The Future Of Mobility Start?

For companies working in the mobility space, the biggest question may actually be where to begin as mobility is such a complex area. The answer is that you need an overall strategy that takes in everything from consumer technology to regulatory frameworks and from branding to partnerships.

The new world of mobility will also require an enormous level of flexibility. In a fast-changing world, not everything is going to turn out as planned. Companies working in this space need to be able to adapt to an unpredictable environment. The world is full of products and services which have been made obsolete or succeeded in ways that their inventors never expected.

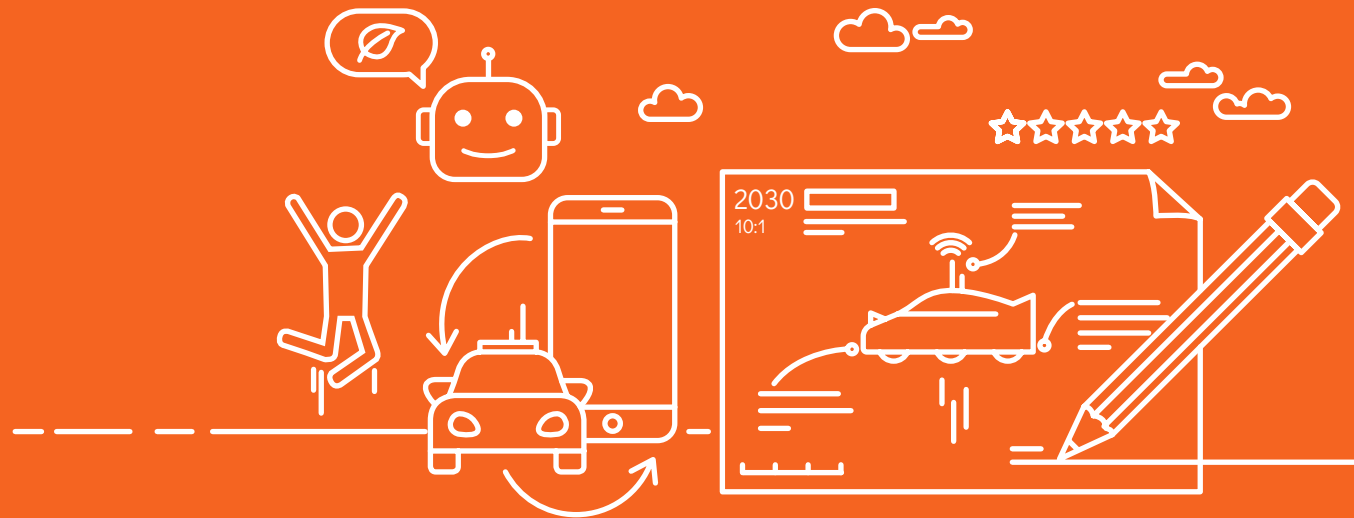
While the challenges are enormous, so are the opportunities. The mobility market stands on the brink of a revolution and we can expect enormous disruption in the next decade. We've seen this happen to dozens of markets ranging from photography to music to video over the past few decades.

The companies which work together to provide a smooth, multi-modal experience for consumers are the ones who are likely to succeed.




# What Is Avis Budget Group Doing?

Although it is helpful to look at the current mobility landscape, what people want and what the next steps should be, it is important to add context by looking at what is already happening.



# The Future Is All About Partnership

A futuristic car is shown in motion, with vibrant light trails in red, orange, and yellow streaking across the scene. The car's sleek, metallic body is highlighted by the ambient light, and the background is a dark, starry space, suggesting a high-tech, forward-looking environment.

This idea of working with partners is everywhere – as the future of mobility is far too large for one company or even government to achieve alone. A good example of this is the work Avis Budget Group is doing with the technology consultancy Slalom which gives a real feel for what the future will look like. It's a partnership which will be using the cloud in the form of Amazon Web Services and machine learning to build an optimisation engine for the company's connected car mobility platform.

Christopher Cerruto, Vice President of Global Architecture and Analytics at Avis Budget Group explains, "We have three main goals for innovation: reinventing the rental experience, digitising our business, and developing new models. We realised that our mainframe technology was not going to help us achieve these goals, so we chose to invest in becoming an API-driven company," says Cerruto. "We began to look at how we could build a mobility platform to fulfill our vision and open up new business opportunities."

This is very much what the future looks like. Partners, technology and machine learning all working together to improve everything from energy use to the rental process. One interesting point here was that, by using Amazon Web Services who are experts in Cloud Computing, the platform was built ten times faster than expected. This highlights two common themes in technology nowadays: no single company has all the expertise and technology feeds on itself to drive change.



Other ventures are less obviously technology-driven. Avis Budget Group has collaborated with Waymo, the self-driving car company owned by Alphabet, since 2017 to support its growing autonomous vehicle fleet and Waymo's early rider program, a public trial of its self-driving cars in Phoenix, Arizona. This partnership allows Avis Budget Group to service Waymo's growing number of cars on the road, ensuring Waymo's self-driving vehicles are always ready for passengers.

The benefits go beyond a commercial transaction where Avis Budget Group has the facilities and the expertise. It means it will learn far more about the emerging area of self-driving vehicles and be familiar with them when they start to become available in the marketplace. Self-driving vehicles may form a kind of "last mile" final link in car share and car rental schemes.

"It's important we continue to work with partners across the mobility landscape to help build a fully-connected ecosystem for consumers. From our established partnerships with Lyft, Via, Fetch, Waymo, and Otonomo, to our newly announced partnership with Uber, these initiatives continue to provide opportunities to improve the experience for our customers, whilst also improving efficiencies and maintaining our position as a global leader in mobility solutions."

Katie Mille  
Director of Strategy & Business Transformation -  
International, Avis Budget Group

# On The Road To A Mobility Revolution

There are plenty of other examples. Avis Car Rental has a partnership with AirBnB's Luxury Retreats and Zipcar is participating in a US Department of Transportation pilot scheme in New York City which means 228 spaces dedicated to Zipcars. The idea is they will eventually begin to replace owned cars, especially for low-usage households. A similar scheme operates in London (Zipcars are also integrated into the Citymapper transit app) while Avis Germany has a partnership with Nextbike which aims to deliver multi-modal journeys.

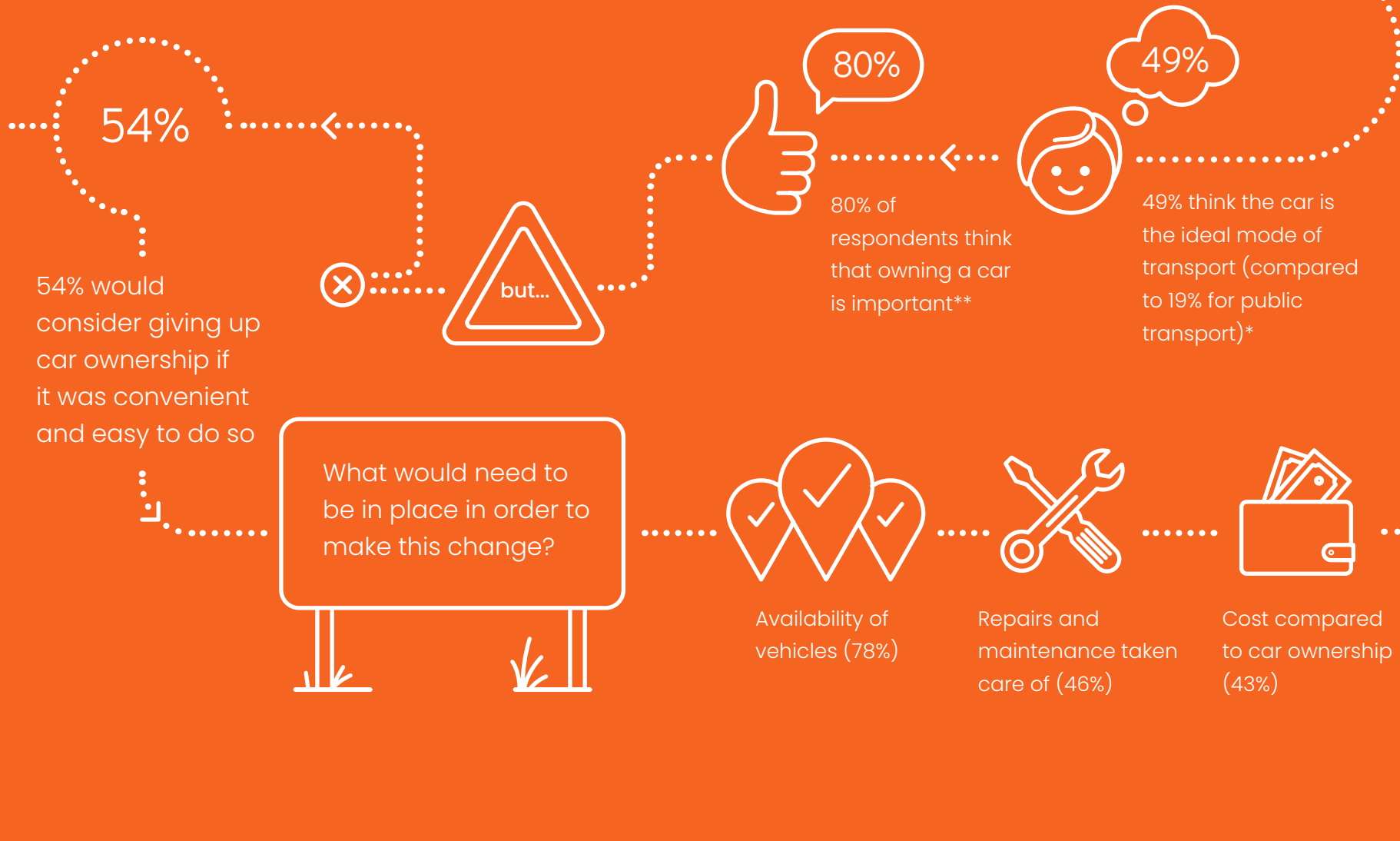
Mobility stands on the brink of a revolution. In ten years' time the mobility landscape is likely to be very different to how it is today. In 20 years' time it may be unrecognisable.

The industry is now at a place with physical services similar to the place it was in about 20 years ago with digital services. First the internet, then mobile and now the connected world and physical things. The big difference perhaps is that while the internet was about single disruptive entities like Google and Amazon, this revolution will be more about partnerships and collaboration. As Cerruto says of the Slalom and Amazon Web Services partnership, "When we began this journey, we knew we were not going to do it alone."

# There's A Lot Of Love For The Car As A Mode Of Transport



75% own a car outright





31%

Only 31% think car ownership will be the most popular way to access a car in the next decade

There is appetite out there to do things differently

Would you be willing to try out a new way of accessing a car/van etc, like a subscription model?

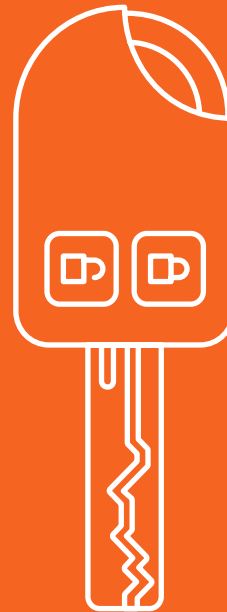
Biggest motivating factors to give up car ownership are;

65% Saves money



10%

Only 10% of respondents say environmental concerns are a factor



33%

said they would if it was ubiquitous in the local area

32%

said if it came from a trusted brand or company

24%

said they might be willing if it was regulated by government

\*That figure drops to 53% in Singapore & 57% in HK

\*\*That figure drops to 62% in Singapore and 70% in HK

## APPENDIX

# The International Mobility League Tables

Avis Budget Group commissioned research amongst 14,286 adults in July and August 2019 across 16 International markets to understand consumer attitudes towards mobility. Markets included: Austria, Belgium, Denmark, France, Germany, Hong Kong, Italy, Malaysia, Norway, Poland, Portugal, Singapore, Spain, Sweden, Switzerland and the UK. The below provides a summary of where countries compare and contrast on their attitudes towards the future of mobility.

Figure 1.

Respondents tell us what they expect to be the most popular way to access a car in the next decade.

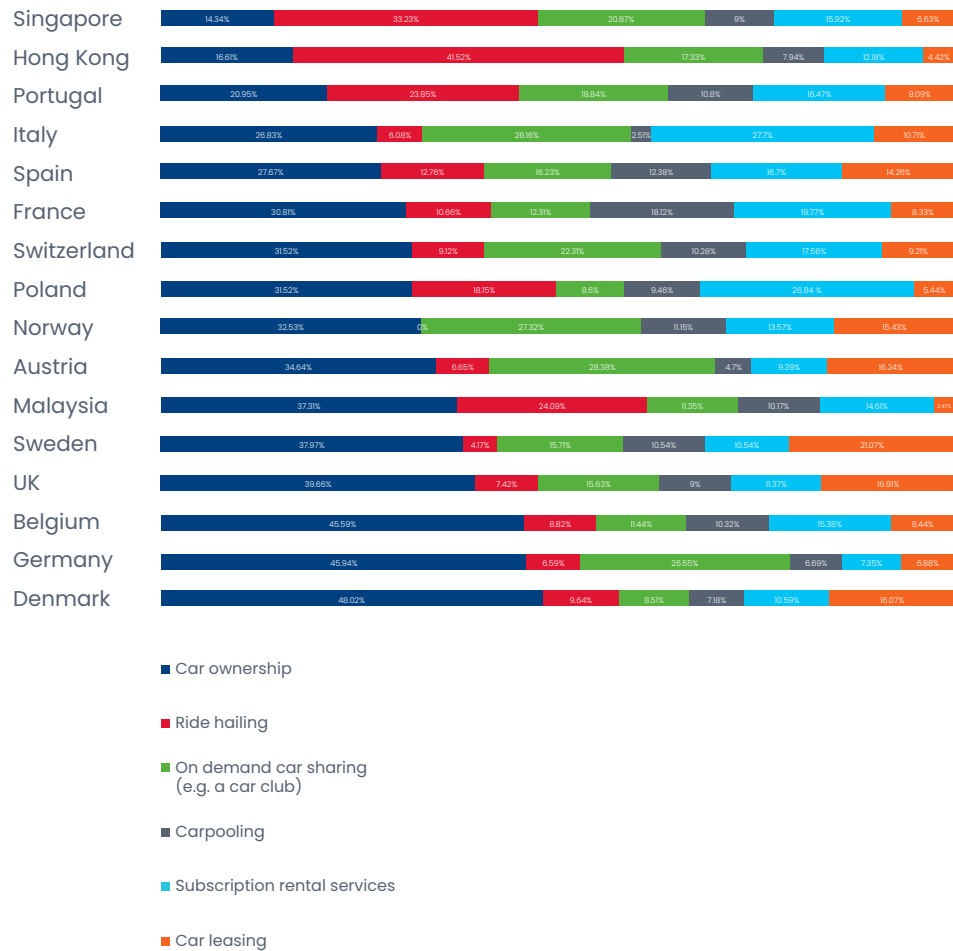


Figure 2.

When asked about considering if they would give up car ownership and instead rely on a long-term rental/ subscription service if it was convenient and easy, here's how consumers responded.

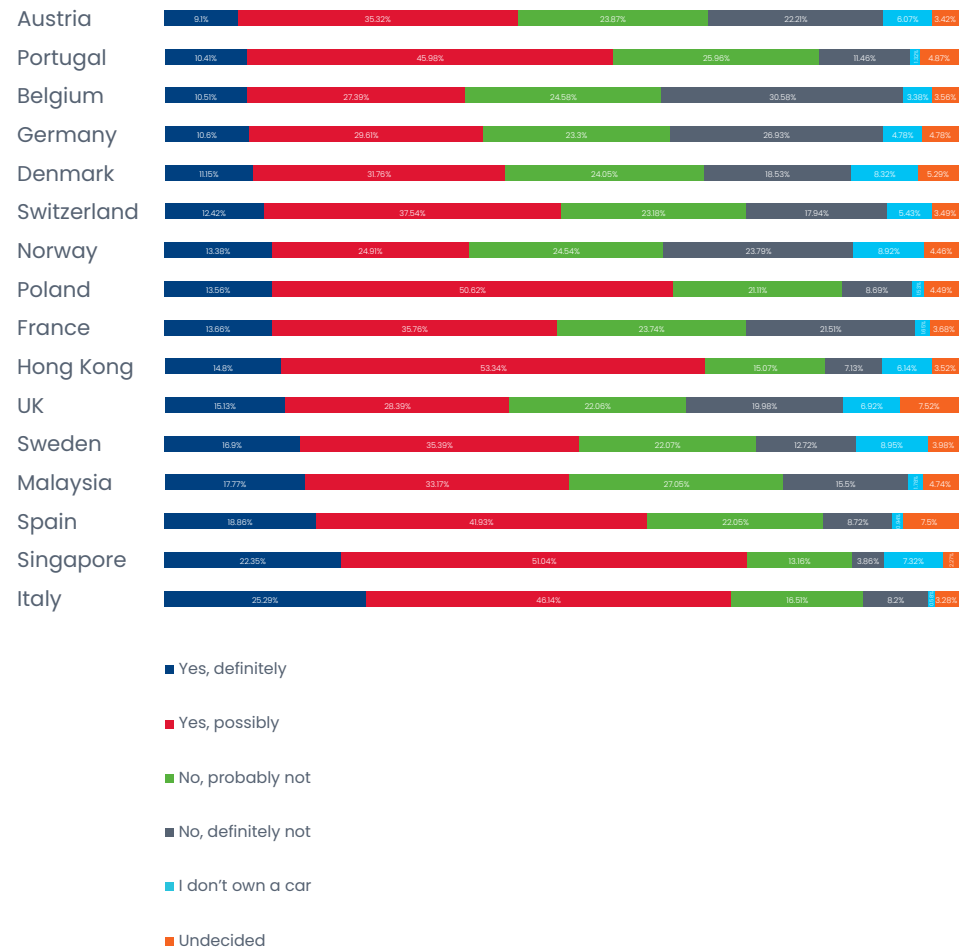


Figure 3.

Consumers responded with the below statements which resonated most, when asked if they were willing to try out a new way of accessing a car/van etc., like a subscription model.

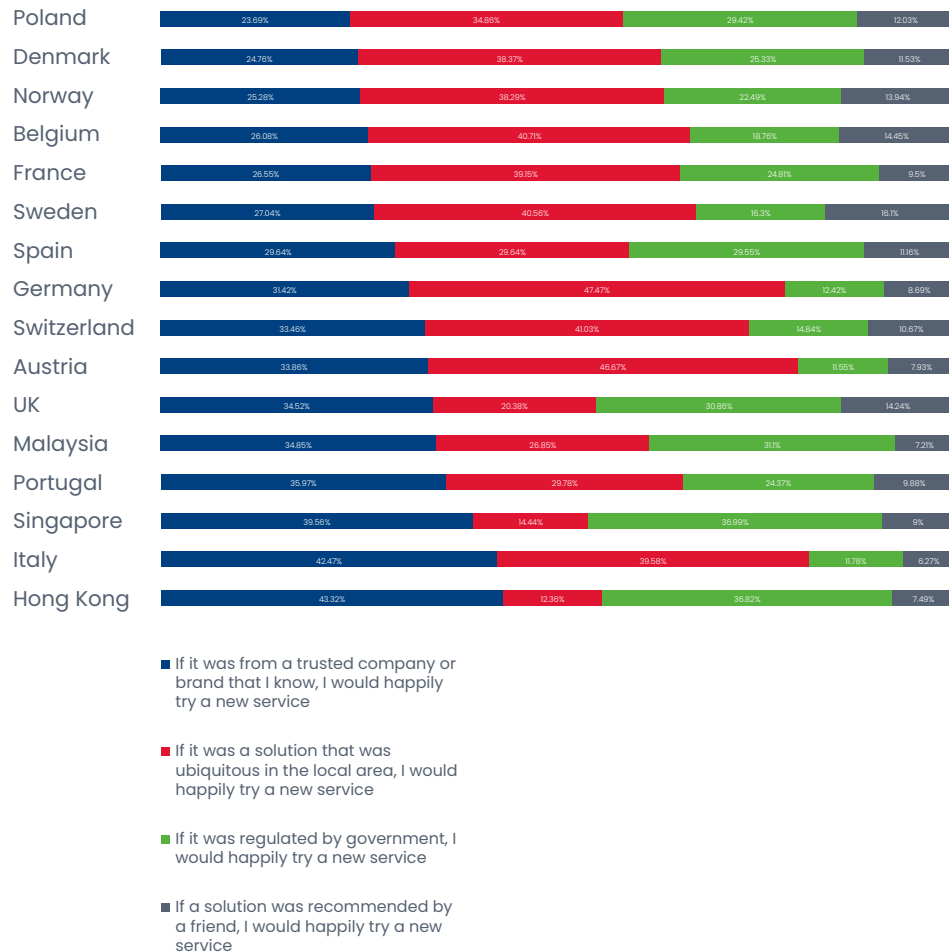
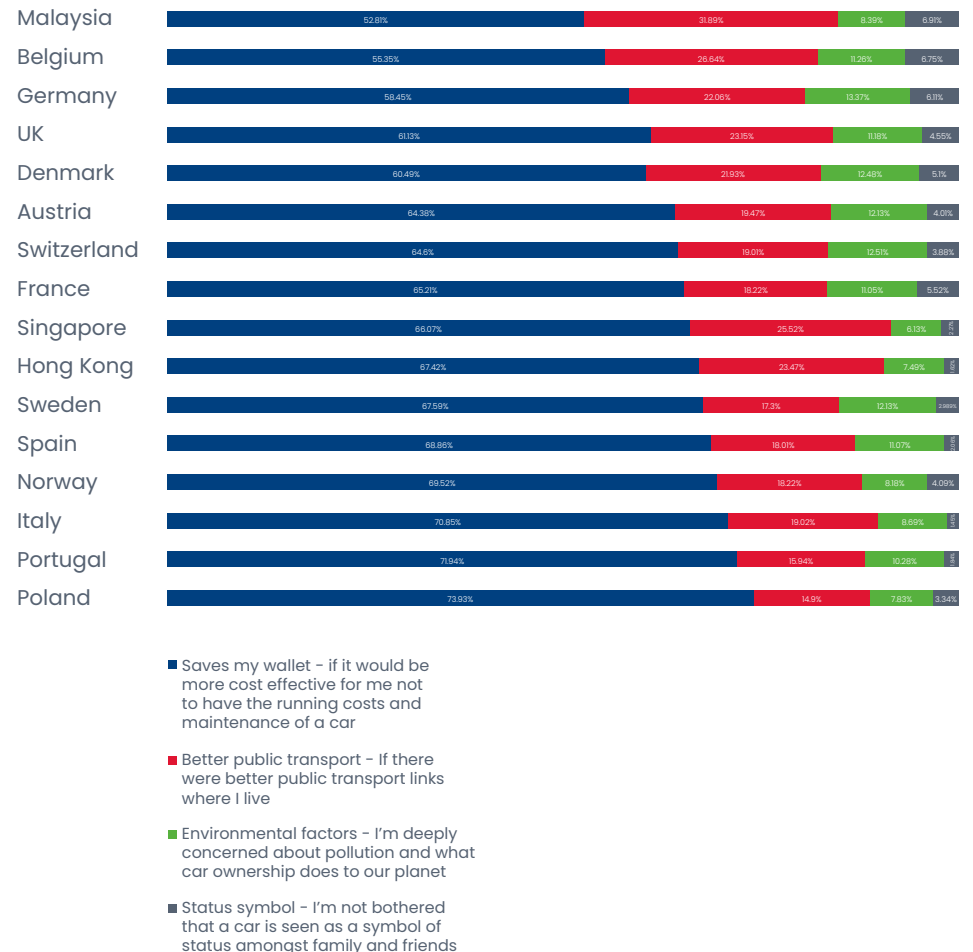


Figure 4.

International respondents outline the below motivations for giving up ownership of their own car.



# Footnotes

1. <https://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>
2. [https://think.ing.com/uploads/reports/ING\\_-\\_Car\\_sharing\\_unlocked.pdf](https://think.ing.com/uploads/reports/ING_-_Car_sharing_unlocked.pdf)
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4. <https://www.racfoundation.org/research/mobility/spaced-out-perspectives-on-parking>
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6. <https://www.jumia.co.ke/mobile-report/>
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