

Parkopedia



# 2024 EU DRIVER SURVEY

*Understanding driver attitudes and behaviour surrounding parking, EV charging and connected car services*

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# Background

- This report outlines the EU highlights from the Parkopedia 2023 Global Driver Survey
- Our analysis of EU data from the Global Driver Survey offers an insight into EU driver attitudes and behaviour
- The survey highlights the main challenges European drivers face when parking and EV charging
- We also outline the rise of in-car payments demand and the connected car features that drivers value most across Europe

## **Methodology: [full research methodology on page 57]**

- Sample size: 2440 respondents including 1220 EV drivers
- Weighting: For questions answered by ICE and EV drivers, EV drivers' responses have been weighted to reflect the proportion of EVs on the road in the respective country
- Research was carried out in May 2023 by international market research company **Borderless Access**



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# Survey Highlights



## User Experience

- European drivers have distinct parking and charging preferences, heavily valuing driving-related connected car services and expecting both convenience and seamless user experiences
- 78% of Europeans would value integrated parking services that direct them to verified parking locations **(page 14)**
- 78% would prefer a vehicle that provides EV charging information and can navigate to public chargers **(page 14)**
- 74% of drivers would prefer to drive a car with integrated in-car EV charging activations and payments **(page 14)**
- 50% of European drivers would value automatic guidance to locations with likely parking/charging availability, while 48% want automatic guidance to car parking/charging locations closest to their destination **(page 14)**

# Survey Highlights



## User Experience

- EV drivers reported a significant level of issues with finding charging locations and accessing chargers, with these making running an EV more stressful than an equivalent petrol or diesel model
- A large proportion of European EV drivers want to charge in specific locations; 44% would queue for up to five minutes to charge at their preferred location. 40% are willing to wait for more than five minutes to do so **(page 15)**
- A significant proportion of European EV drivers are also keen to charge in specific locations, regardless of cost; 42% of drivers would be willing to pay a premium of up to 10% to charge in their preferred location **(page 15)**
- 26% of EV drivers have failed to locate a charger 'at least once a week' or 'at least once a month', while attempting to navigate using their in-car media system **(page 15)**
- The most commonly reported issues by European EV drivers while charging/attempting to charge in public are out-of-order chargers (46%) and chargers being occupied by another vehicle (45%) **(page 15)**

# Survey Highlights



## Parking Situation

- 57% of Europeans park away from home once a month or more, reaching 69% in Italy, 67% in Germany **(page 17)**
- Free on-street parking (68%), paid off-street parking (62%) and paid on-street parking (60%) are the three types of parking locations used most widely by European drivers when away from home **(page 18)**
- 37% of European drivers start searching for parking up to 24 hours before their journey or more – 14% doing so more than 24 hours ahead and 23% doing so up to 24 hours ahead of time **(page 19)**
- Using a mobile application (37%), online (37%) and in-car navigation (36%) are the methods most widely used by Europeans to search for parking, with in-car navigation in Germany recording the highest figure (43%) **(page 20)**

# Survey Highlights



## Parking Data and Preferences

- Overall distance to destination (51%) and parking charges (50%) are the top two priorities for European drivers when choosing a parking location **(page 22)**
- 51% of European drivers would be willing to hover for up to five minutes to park in their preferred location, while 44% would pay a premium of up to 10% more to do so, reaching a high of 51% in the UK **(page 23)**
- 47% of European drivers find it challenging to find parking 'all the time', 'very frequently' or 'frequently', highlighting widespread problems with parking provision across Europe **(page 24)**
- 38% claim that the accuracy of parking information is 'extremely important' or 'very important' to them **(page 25)**
- 78% of European drivers would prefer their vehicles to offer integrated parking services that enable them to navigate directly to verified parking locations, demonstrating significant interest in time-saving features **(page 26)**

# Survey Highlights



## Electric Vehicle (EV) Ownership

- 85% of European drivers would consider buying an EV, including 90% of Italians and 89% of UK drivers
- Of those who wouldn't consider an electric car as their next vehicle, 53% believe that EVs are too expensive, including 70% of German drivers who aren't open to getting an EV **(page 28)**
- Among those who would consider an EV, 45% have concerns over their ability to find charging away from home while 42% are worried about their ability to charge at home/near home **(page 30)**
- 42% of drivers claim that the current number and setup of public EV chargers prevents them from getting an EV, with French drivers having the greatest concern in Europe (53%) and Italians the lowest (26%) **(page 31)**
- 89% of European drivers would be more likely to purchase an EV if it had combined in-car parking and charging services **(page 32)**
- 78% of drivers in Europe would prefer to drive a vehicle that provides information about public EV charging and enables them to navigate directly to specific charging locations, rising to 84% among current EV users **(page 33)**
- 74% of drivers would prefer to drive a car with integrated in-car EV charging activations and payments **(page 34)**

# Survey Highlights



## Charging Situation

- 24% of Europeans feel 'very anxious' or 'moderately anxious' about finding charging away from home **(page 36)**
- 60% of European EV drivers have run out of charge once or multiple times: 41% have found themselves out of charge once while a further 19% have run out of charge on multiple occasions **(page 37)**
- 38% of European EV drivers find it challenging to locate charging points away from home 'all the time', 'very frequently' or 'frequently', highlighting Europe-wide issues in finding suitable charging **(page 38)**
- 51% of EV drivers consider charging information accuracy to be 'extremely important' or 'very important' **(page 39)**
- 26% of EV drivers in Europe pay for charging away from home every day or at least once a week **(page 40)**

# Survey Highlights



## Charging Data and Preferences

- 25% of European EV drivers start searching for public charging at least 24 hours ahead, while 35% typically begin looking for charging up to 24 hours ahead, with only 10% leaving it until at their destination **(page 42)**
- The top three factors affecting which public EV charging locations European drivers use are charger availability (cited by 53% of EV drivers), charging costs (53%) and the overall distance to the destination (51%) **(page 43)**
- 44% of European EV drivers would be willing to queue for up to five minutes to charge at their preferred location, with 40% willing to wait for more than five minutes to charge where they want **(page 44)**
- 42% of drivers would be willing to pay a premium of up to 10% to charge in their preferred location, though only 8% would be happy to pay more than 10% extra to do so **(page 44)**
- While contactless payment (28%), card (26%) and app/website (23%) payments are currently the most popular payment methods, in-car payment is the method most wanted by drivers in future, requested by 39% **(page 45)**

# Survey Highlights



## Charging and Fines

- 26% of EV drivers have failed to locate an EV charge point 'at least once a week' or 'at least once a month', while trying to navigate using their in-car media system **(page 48)**
- Out-of-order chargers (46%) and chargers being occupied by another vehicle (45%) are the two biggest issues experienced by EV drivers in Europe while charging/attempting to charge in public **(page 49)**
- A significant proportion of European EV drivers have unexpectedly received parking fines while charging, with 21% stating that they have been fined multiple times, with a further 28% receiving one unexpected fine **(page 50)**
- Of those who received fines, 53% believe that 'more accurate parking information' would have prevented these, with 44% feeling that 'clearer physical parking and charging information' would have prevented the fine **(page 51)**
- Meanwhile, 32% of EV drivers unexpectedly issued with parking fines, see in-car parking and charging payments as a solution protecting drivers from shock parking tickets **(page 51)**

# Survey Highlights



## Preference of Features

- 50% of European drivers would value automatic guidance to locations with likely parking/charging availability, while 48% want automatic guidance to car parking/charging locations closest to their destination **(page 53)**
- The most popular in-car payment feature among European drivers, is payments for vehicle centric services, which 50% of motorists across the continent want to have in their media system **(page 54)**
- 59% of drivers in Europe want to be able to pay for car parking through their vehicle, with 53% valuing the option to pay for EV charging through in-car commerce **(page 55)**
- Drivers in Europe have a strong interest in indoor mapping, with 84% valuing the option of underground/multi-storey car park mapping, with 74% wanting to use it to find their car when returning to a car park **(page 56)**



# User Experience Situation

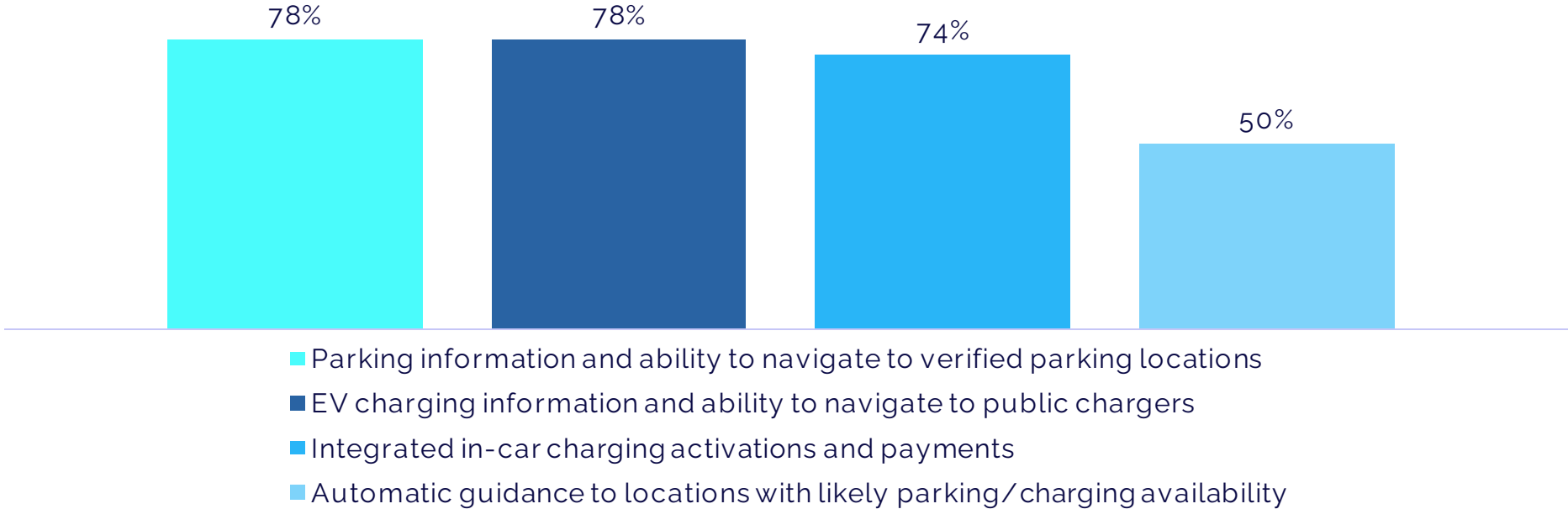
- Driver parking and charging preferences
- Connected car services preferences
- EV charging user experience





# Driver parking and charging preferences

- European drivers value driving-related connected services over peripheral features such as buying food through their car, as highlighted in the TechInsights Connected Features Interest Report, which supports the findings of our Global Driver Survey
- The TechInsights report rated parking availability information as European drivers' second highest connected car preference with 69% of Europeans being likely to choose this. Meanwhile, 61% would value being able to reserve spaces near their destination
- These figures highlight that European drivers value seamless user experiences and convenience very highly
- Furthermore, 59% of European drivers would choose to be able to pay for road tolls directly through their vehicle while 53% would be likely to choose to pay for parking and 49% would prefer to be able to pay for fuel directly through their vehicle
- Meanwhile, only 28% of European motorists surveyed would like to be able to purchase food through the car
- Key priorities for motorists highlighted in our 2023 Global Driver Survey are driver convenience features and seamless user experiences



Key priorities for drivers in Europe are convenience and having a seamless user experience



# EV charging user experience

- Concerns over the EV charging process are still a significant worry for a large proportion of potential electric car drivers
- Range anxiety, charger availability, charging times and charging costs are all notable issues for many drivers considering EVs
- Drivers value convenience and being able to charge in specific locations – whether those are sites they know, ones where they feel confident they can reliably charge or simply places they feel safe – and they are willing to wait or pay more to charge here
- 44% of European EV drivers would wait up to five minutes to charge in their preferred location, with 40% waiting over five minutes
- 42% of EV drivers are willing to pay up to 10% extra to charge in their desired location, highlighting the importance of convenience
- 26% of EV drivers struggle to find chargers 'at least once a week' or 'at least once a month' when using their in-car media system
- European EV drivers are plagued with out-of-order chargers – something reported by 46% of respondents – and issues finding free charging spaces, with 45% having experienced all chargers at public charging locations being occupied by other vehicles

|  | Europe |
|--|--------|
| Queue for up to five minutes to charge in preferred location     | 44%    |
| Queue for more than five minutes to charge in preferred location | 40%    |
| Pay up to 10% extra to charge in preferred location              | 42%    |
| Pay more than 10% extra to charge in preferred location          | 8%     |

|                                  | Europe |
|----------------------------------|--------|
| Charger out of order             | 46%    |
| Charger occupied by another car  | 45%    |
| Not able to access charger       | 27%    |
| Not able to find desired charger | 23%    |



44% of European EV drivers would wait up to five minutes to charge in their preferred location, with 40% waiting over five minutes



# Parking Situation

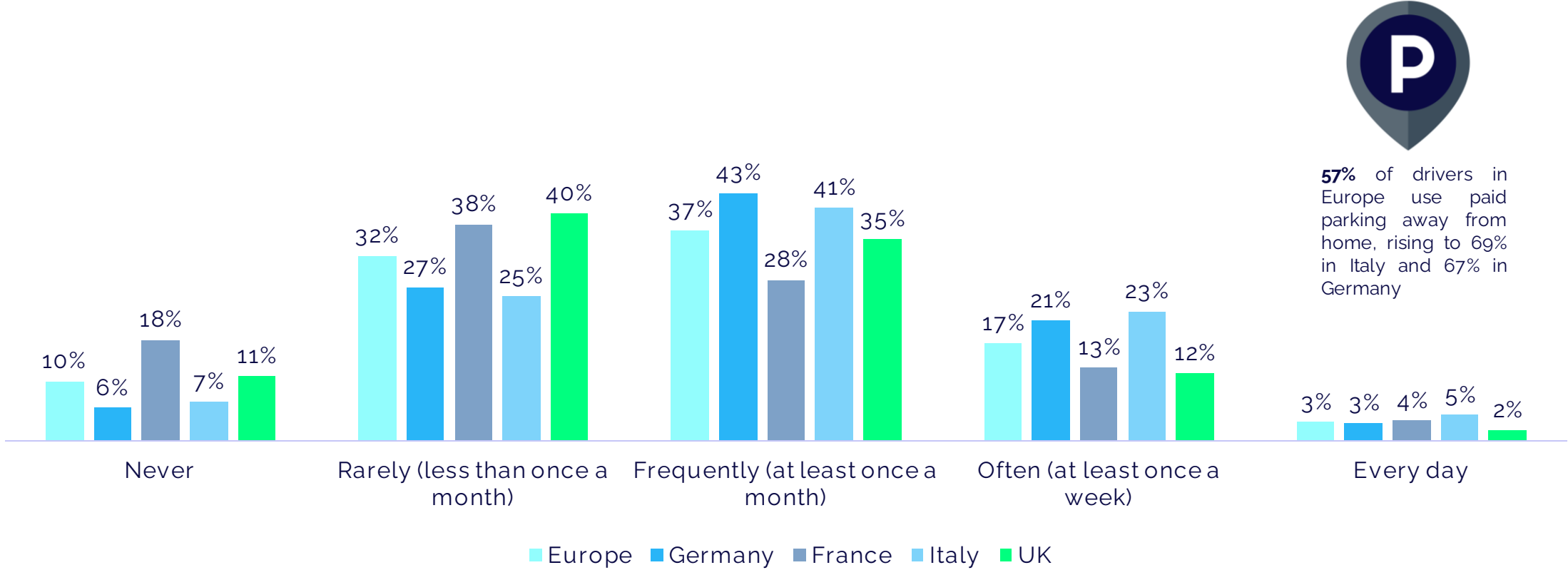
- Parking frequency
- Parking locations
- Planning for parking
- Methods currently used to find parking
- Methods wanted for finding parking in future





# How often do you pay for parking away from home?

- 57% of European drivers park away from home at least once a month, increasing to 69% in Italy and 67% in Germany
- French drivers are most likely to never pay to park away from home, with 18% never doing so, compared with just 6% in Germany
- Unlike with many parking and charging figures, there is little difference between urban and rural drivers' parking habits
- While 16% of rural drivers pay to park at least once a week or every day, however, this figure does rise to 23% for urban motorists
- Similarly, there is little difference between ICE and EV drivers' parking habits, with only 1-2% difference in each of the categories



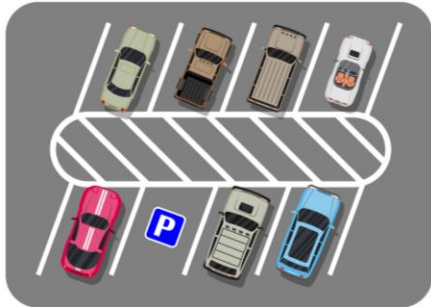


# Which type of parking locations do you mainly use when away from home?

- Free on-street parking (68%), paid off-street parking (62%) and paid on-street parking (60%) are the three most widely used parking locations for European drivers when looking for somewhere to park away from home
- Private parking at destination is much less widely used than in the US or Japan while free on-street parking is more common
- Urban and rural drivers have similar parking location priorities, though urban drivers are slightly more likely to rely on paid on-street parking (at 61% compared with 57%), while rural drivers are more likely to use paid off-street parking at 66% versus 59%
- EV drivers are more likely than ICE drivers to use private parking (at 61% versus 54%), likely due to these accounting for many of the locations where charging is available. ICE drivers are more likely to use paid on-street parking than EV drivers (at 60% compared to 53%)

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| <b>Paid on-street parking</b>               | 60%    | 60%     | 60%    | 63%   | 55% |
| <b>Paid off-street parking</b>              | 62%    | 63%     | 59%    | 61%   | 64% |
| <b>Private parking at destination</b>       | 54%    | 50%     | 51%    | 56%   | 60% |
| <b>Free on-street parking</b>               | 68%    | 67%     | 70%    | 70%   | 65% |
| <b>Free off-street parking</b>              | 45%    | 45%     | 48%    | 40%   | 46% |
| <b>Other (e.g. private driveway rental)</b> | 11%    | 15%     | 12%    | 9%    | 9%  |

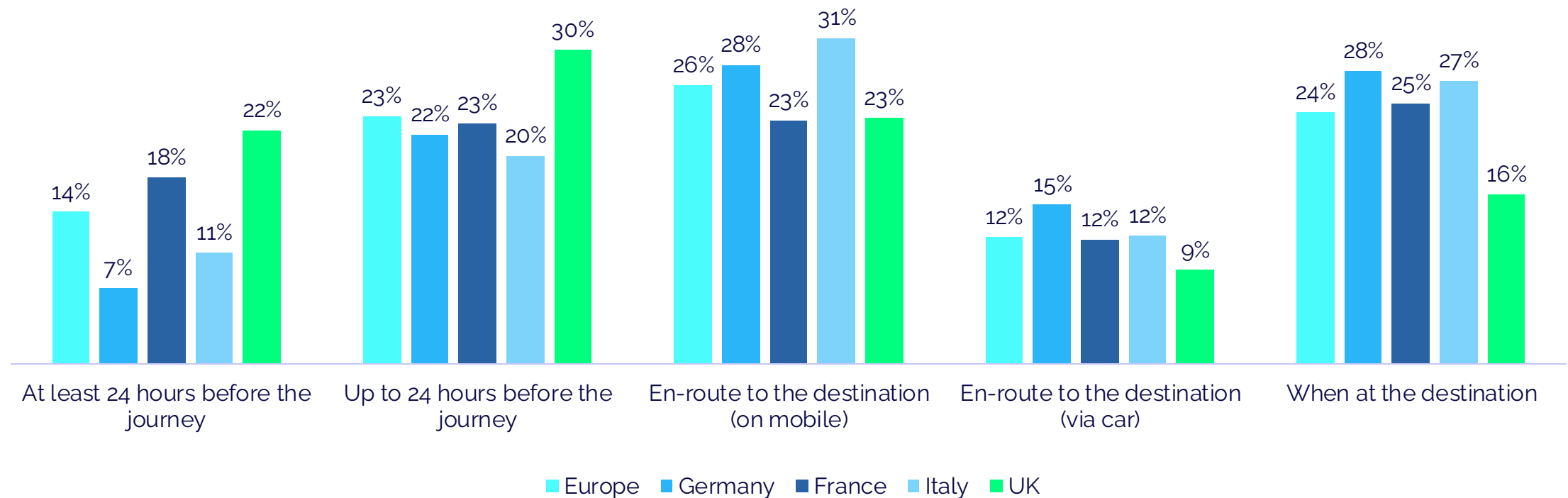
Urban and rural drivers have similar parking location priorities, though urban drivers are slightly more likely to rely on paid on-street parking (at **61%** compared with **57%**)





# When do you normally start searching for parking?

- 37% of European drivers start searching for parking locations up to 24 hours before their journey or even further ahead
- Drivers in the UK are most likely to plan ahead, with 22% seeking parking more than 24 hours ahead and a further 30% looking up to 24 hours ahead. French drivers are close behind, with 18% planning more than 24 hours ahead and 23% up to 24 hours ahead
- Rural drivers are most likely to search for parking ahead of time; 16% plan at least 24 hours ahead and a further 25% plan up to 24 hours ahead, compared with 14% and 23% for urban drivers, though urban drivers typically experience greater parking challenges
- European EV drivers, meanwhile, are more likely to plan ahead than ICE drivers, with only 21% leaving looking for parking until at their destination, compared with 24% among ICE drivers





# How do you currently search for parking? In the future, how would you like to search for parking?

- European drivers are similarly likely to search online (37%), use a mobile application (37%) or in-car navigation (36%) to find parking
- German drivers, however, are most likely to use in-car navigation now (43%) and in future, with 54% planning to continue doing so
- There are few differences between the methods urban and rural drivers use to find parking, though urban drivers are more keen to use in-car navigation in future (at 44% compared with 39% for rural drivers), showing a greater eagerness to plan ahead
- EV drivers are also more likely to rely on in-car navigation than ICE drivers, with 44% doing so and 50% planning to do so in future, compared with 36% of ICE drivers currently and 42% in the future

| Europe                       | Current | Future |
|------------------------------|---------|--------|
| Using a mobile application   | 37%     | 47%    |
| Online                       | 37%     | 38%    |
| In-car navigation            | 36%     | 42%    |
| When arriving at destination | 34%     | 22%    |



Drivers in urban areas are more keen to use in-car navigation to find parking in future at **44%**, compared with **39%** for rural drivers



# Parking Data and Preferences

- Factors affecting choice of parking location
- Preferences regarding parking in preferred location
- Frequency of facing difficulties while locating parking spaces
- Importance of parking information accuracy
- Preference for driving vehicles with integrated parking services





# What are the top factors affecting your decision when selecting a parking location?

- European drivers' top priorities when choosing parking locations are distance to the destination, cited by 51% of respondents – including 56% of Italians and 54% of French drivers – and parking charges, raised by 50% of respondents
- Urban and rural drivers have similar priorities, with distance to destination and parking charges being the most important elements
- EV drivers, however, are most affected by parking charges, with 54% taking these into account in where they park compared with 50% of ICE drivers – potentially as EV drivers often have to pay for charging alongside the cost of parking
- EV drivers are also more concerned about availability, with 42% taking this into account compared with just 36% of ICE drivers

|                                  | Europe | Germany | France | Italy | UK  |
|----------------------------------|--------|---------|--------|-------|-----|
| <b>Distance to destination</b>   | 51%    | 44%     | 54%    | 56%   | 48% |
| <b>Parking costs</b>             | 50%    | 50%     | 49%    | 50%   | 52% |
| <b>Parking availability</b>      | 36%    | 39%     | 35%    | 30%   | 40% |
| <b>Ability to reserve spaces</b> | 32%    | 34%     | 27%    | 33%   | 33% |
| <b>Type of parking location</b>  | 36%    | 34%     | 36%    | 34%   | 42% |
| <b>Payment type</b>              | 33%    | 36%     | 30%    | 34%   | 33% |
| <b>EV stations</b>               | 24%    | 27%     | 28%    | 19%   | 23% |

51% of European drivers cited distance to their destination as the top priority when selecting a parking location





# What would you be willing to do to park in your preferred location?

- A large proportion of European drivers are open to waiting or paying a premium to leave their car in their preferred location
- 51% of European motorists would be willing to wait up to five minutes, with 47% open to waiting for more than five minutes to park
- German and UK drivers are particularly willing to wait over five minutes, with Italian and French drivers open to lower wait times
- Meanwhile, 44% of European motorists are open to paying a premium of up to 10% to park in their preferred location, with UK drivers most open to doing so, with 51% willing to pay up to 10% extra and a further 18% open to a premium of more than 10%
- Urban and rural drivers are similarly likely to consider waiting to park in their desired location, though 46% of urban drivers would be willing to pay up to 10% more compared with just 41% of rural drivers, likely due to more acute parking problems in urban areas
- Contrastingly, EV drivers are more willing to pay a premium than ICE drivers, with 48% open to paying up to 10% extra compared with 44% of ICE drivers and 17% being open to paying more than 10% extra, compared with only 14% of ICE drivers

|                                    | Europe | Germany | France | Italy | UK  |
|------------------------------------|--------|---------|--------|-------|-----|
| <b>Circle for up to 5 mins</b>     | 51%    | 48%     | 51%    | 54%   | 49% |
| <b>Circle for more than 5 mins</b> | 47%    | 52%     | 40%    | 46%   | 49% |
| <b>Pay a premium of up to 10%</b>  | 44%    | 45%     | 41%    | 41%   | 51% |
| <b>Pay a premium of over 10%</b>   | 14%    | 15%     | 12%    | 11%   | 18% |

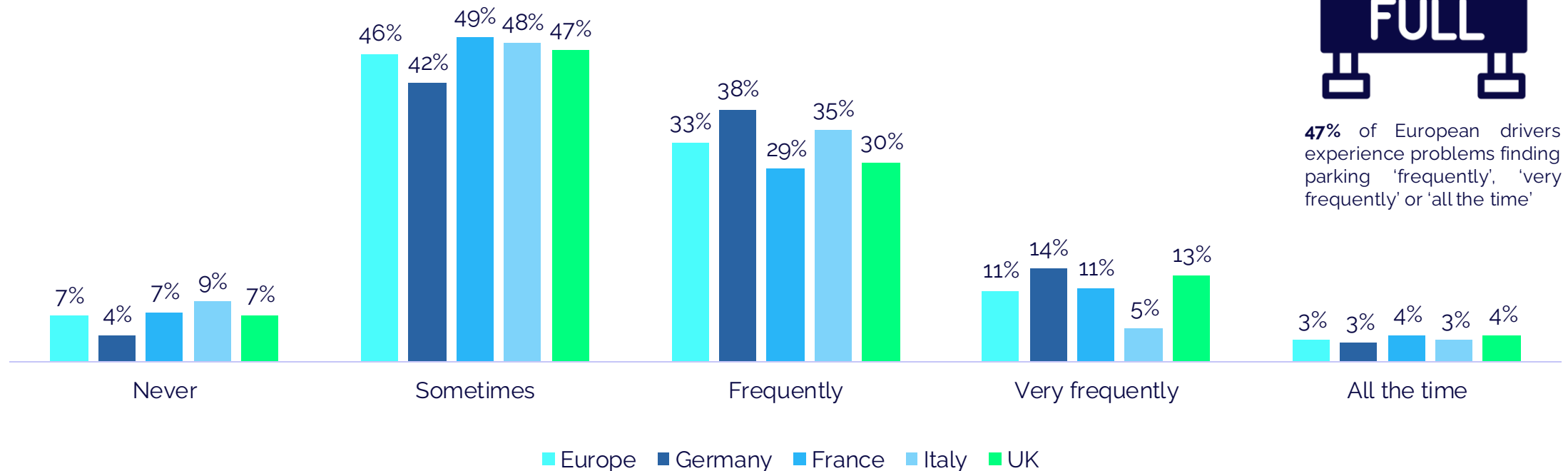


Drivers in the UK and Germany are more willing to wait more than five minutes to park in their preferred location than those in Italy and France



# When parking away from home, how often is it challenging to locate a space?

- Drivers in Europe face regular challenges to locate parking away from home, with 47% of Europeans experiencing problems finding parking 'frequently', 'very frequently' or 'all the time' – only 7% of European motorists never have issues finding spaces
- British and German drivers have the greatest level of issues, with 17% having problems 'very frequently' or 'all the time'
- Urban and rural drivers have similar difficulties in locating spaces – despite urban areas typically having greater parking issues
- There are also only small differences between the parking challenges experienced by ICE and EV drivers

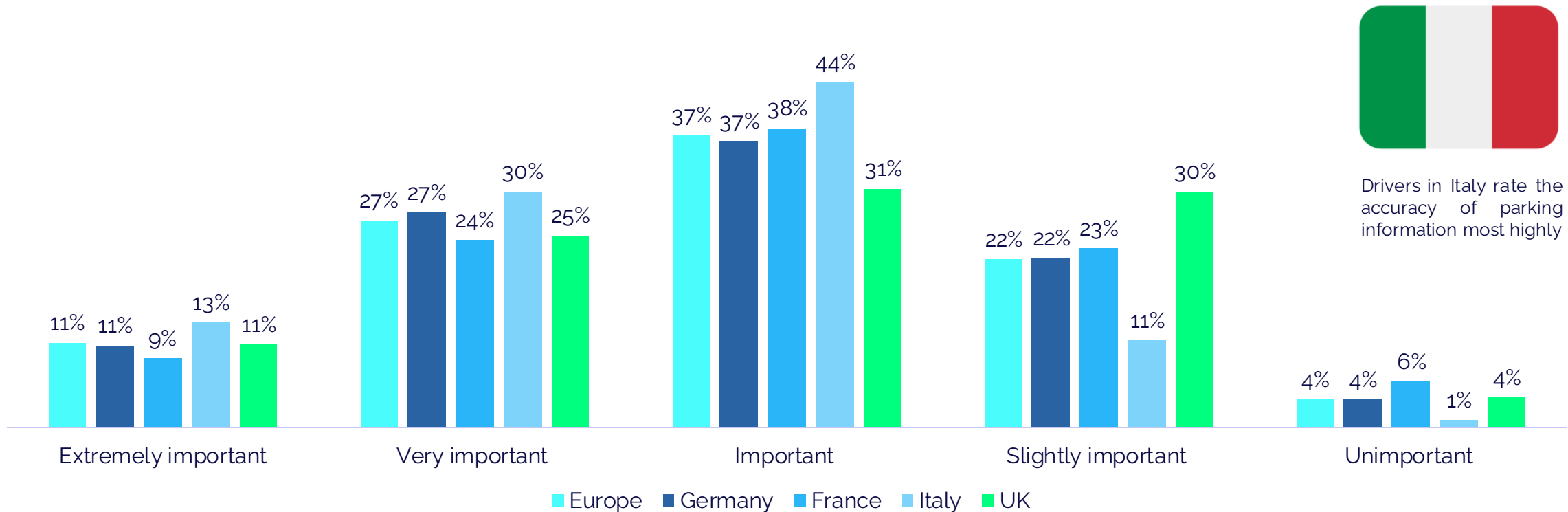


**47%** of European drivers experience problems finding parking 'frequently', 'very frequently' or 'all the time'

# How important is the accuracy of the information regarding parking options?



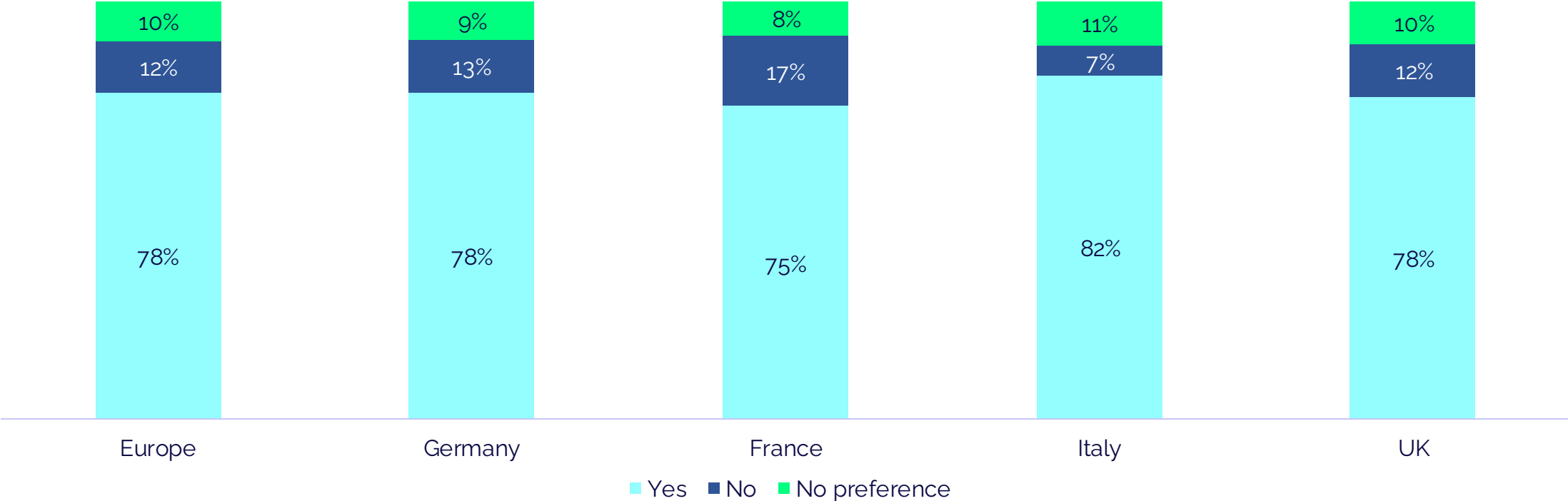
- 38% of European drivers consider the accuracy of parking information to be 'extremely important' or 'very important'
- Drivers in Italy rate the accuracy of parking information most highly, with 43% classing it 'extremely important' or 'very important'
- EV drivers place more weight in accurate parking information than ICE drivers, with 46% rating it in one of the two top categories
- Similarly, urban drivers rate parking information accuracy even more highly than rural ones, with 40% of urban motorists classing accuracy as 'extremely important or 'very important'





# Would you prefer to drive a vehicle with integrated parking services that can direct you to verified parking locations?

- 78% of European drivers would prefer their vehicles to offer integrated parking services that enable them to navigate directly to verified parking locations. Drivers in Italy have the greatest appetite for parking services, with 82% wanting to have these
- EV drivers have more interest in integrated parking services than ICE drivers, with 81% wanting them compared with 78% of ICE drivers
- Urban drivers also value integrated parking services more than rural ones, with 79% valuing these compared with 75% of rural drivers





# Electric Vehicle Ownership

- Reasons for not considering an EV
- Concerns over owning an EV
- Effect of current number and setup of public EV chargers on considering whether or not to purchase an EV
- Preference for driving vehicles that provide information about public EV charging and provide navigation to chargers
- Preference for driving vehicles that offer integrated in-car activations and payments for EV charging



# What are the reasons for not considering an Electric Vehicle (EV) as your next car?



- The greatest factor preventing European drivers from going electric is expense, a concern raised by 53% of those who wouldn't consider an EV as their next vehicle, including a substantial 70% of those in Germany
- A significant proportion of drivers who aren't open to an EV are also put off by the belief that the range per charge may not be sufficient for their needs, with the figure standing at 41% across Europe, including 47% of Germans and 43% of UK drivers
- Additionally, 36% of Europeans who wouldn't consider an EV are put off by the ability to find charging away from home, rising to 40% in Germany and the UK. 33% are also concerned about charging at home, including 41% of Germans not ready for an EV



A significant proportion of drivers who aren't open to an EV are also put off by the belief that the range per charge may not be sufficient for their needs, with the figure standing at **41%** across Europe, including **47%** of Germans and **43%** of UK drivers

|  | Europe | Germany | France | Italy | UK  |
|--|--------|---------|--------|-------|-----|
| <b>Concerns over ability to charge at home/near home</b>     | 33%    | 41%     | 30%    | 26%   | 31% |
| <b>Concerns over ability to find charging away from home</b> | 36%    | 40%     | 31%    | 32%   | 40% |
| <b>Believe range per charge may not be sufficient</b>        | 41%    | 47%     | 40%    | 29%   | 43% |
| <b>Believe that charging cost is too expensive</b>           | 23%    | 22%     | 28%    | 13%   | 23% |
| <b>Believe that charging may take too long</b>               | 27%    | 29%     | 27%    | 26%   | 23% |

# What are the reasons for not considering an Electric Vehicle (EV) as your next car?



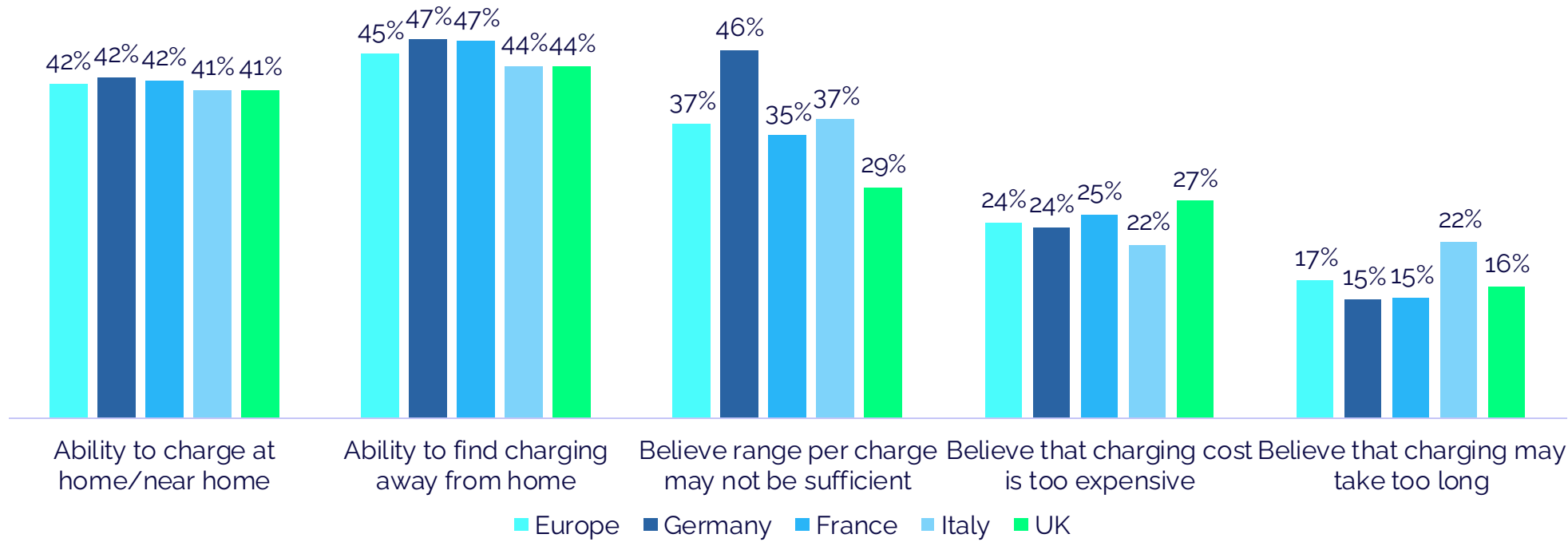
- Urban and rural drivers are similarly concerned about the cost of EVs, with 53% of those not considering an EV citing cost for this. The figure is the same for ICE drivers, though only 39% of EV drivers say that expense stops them from getting another EV
- More than a third of urban and rural drivers who wouldn't get an EV say that concerns over charging at home and away from home prevent them from doing so. Rural drivers are more concerned about charging away from home, cited by 41%, while urban drivers worry more about home charging, a factor that prevents 36% of urban drivers who wouldn't get an EV from doing so
- Current EV drivers who wouldn't get another EV are less concerned about all factors than ICE drivers, suggesting that their familiarity with finding charging, and the costs and time involved make these less of an issue for them

|  | Total | Rural | Urban | ICE | EV  |
|--|-------|-------|-------|-----|-----|
| <b>Too expensive</b>   | 53%   | 53%   | 53%   | 53% | 39% |
| <b>Safety concerns</b>                                       | 19%   | 23%   | 17%   | 19% | 13% |
| <b>Concerns over ability to charge at home/near home</b>     | 33%   | 27%   | 36%   | 33% | 27% |
| <b>Concerns over ability to find charging away from home</b> | 36%   | 41%   | 33%   | 36% | 22% |
| <b>Believe range per charge may not be sufficient</b>        | 41%   | 35%   | 43%   | 41% | 33% |
| <b>Believe that charging cost is too expensive</b>           | 23%   | 22%   | 23%   | 23% | 16% |
| <b>Believe that charging may take too long</b>               | 27%   | 23%   | 28%   | 27% | 12% |

# Would you consider any of the following a 'concern' when it comes to owning an EV?



- Among those who would consider an EV as their next car, 45% are concerned about their ability to find charging away from home, rising to 47% in Germany and France. Meanwhile, 42% across Europe worry about their ability to charge at home/near home
- European drivers' third most serious concern regarding driving an EV is that the range per charge isn't sufficient for their needs, though this is skewed by German drivers who consider this a particularly significant concern, cited by 46% of respondents
- Charging costs and durations are seen as a worry among European drivers, though these are on a much lower level, with only 24% of motorists seeing charging cost as a problem and 17% being concerned about charging times
- Urban and rural drivers have a similar level of concern over being able to charge at home, though rural drivers are more worried about their ability to find charging when away from home, with 48% concerned about this compared with 44% of urban motorists
- EV drivers, meanwhile, are more concerned about EV range being insufficient, with 40% raising this compared with 36% of ICE drivers, though ICE drivers are more worried about charging at home, with 42% citing this compared with 32% of EV owners



45% of European drivers who would consider an EV are concerned about charging away from home

# Does the current public EV charging infrastructure prevent you from getting an EV?



- 42% of European drivers claim that the current number and setup of public EV chargers prevents them getting an EV, with the highest percentage coming from France (53%) and the lowest from Italy (26%), demonstrating significant regional differences
- Despite this, only 15% to 26% across the European countries surveyed thought the current charging format is sufficient, showing that concern over public charging is widespread and puts off many drivers from getting electric cars
- A similar proportion of current urban and rural, ICE and EV drivers are put off getting an EV by current charging infrastructure
- However, more urban than rural (41% compared with 30%) and EV than ICE (45% compared with 38%) worry about public charging
- Of urban, rural, ICE and EV categories, the one with lowest confidence in public charging is current EV drivers; only 14% have faith in current public charging. Rural drivers are most confident, with 28% believing the charging situation is sufficient for their needs



42% of European drivers claim that the current number and setup of public EV chargers prevents them getting an EV, with the highest percentage coming from France (53%) and the lowest from Italy (26%)

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| <b>Yes – I will not get an EV with the current public charging situation</b>              | 42%    | 45%     | 53%    | 26%   | 34% |
| <b>Somewhat – the current public charging situation makes me less likely to get an EV</b> | 38%    | 36%     | 32%    | 48%   | 40% |
| <b>No – the current public charging situation is sufficient for my needs</b>              | 20%    | 19%     | 15%    | 26%   | 25% |



# Would in-car Park and Charge functionality make you more likely to purchase an EV?

- 89% of drivers would be more likely to purchase an EV if it had combined Parking and Charging functionality, reaching 91% in Italy and 90% in the UK
- Interest levels are particularly high among current EV drivers, reaching 94%, with a rate of 89% among current ICE owners
- With 87% to 94% of respondents across urban, rural, ICE and EV categories and all four European countries surveyed valuing Park and Charge functionality, seamless assistance with locating and navigating to parking and charging locations clearly provides a significant amount of reassurance to a significant majority of European drivers and makes them more likely to buy a specific EV



89% of drivers would be more likely to purchase an EV with Park and Charge functionality, reaching 91% in Italy and 90% in the UK

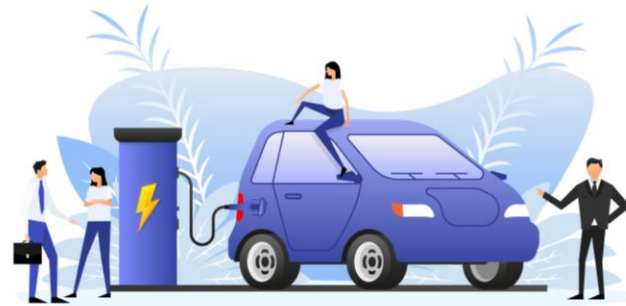
Park and Charge functionality would make 87% to 94% of drivers in urban and rural areas plus ICE and EV drivers more likely to get an EV

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| Effect of in-car Park and Charge functionality on EV purchase consideration | 89%    | 88%     | 87%    | 91%   | 90% |



# Would you prefer a car that provides information about public charging and enables you to navigate directly to specific chargers over an equivalent that does not?

- 78% of European drivers would prefer to drive a car that provides information about public EV charging and directs them to specific charging locations. Drivers in Italy have the greatest appetite for this; 85% want EV charging information and navigation
- Unsurprisingly, current EV drivers place the greatest value in this, with 84% wanting in-car charging information and navigation to specific chargers, compared with 78% among drivers of ICE vehicles
- Both urban and rural drivers would prefer to have in-car charging information and direct navigation to chargers, with 79% of urban drivers and 78% of rural motorists preferring to have this functionality



84% of current EV drivers want in-car charging information and navigation to specific chargers

|  | Europe | Germany | France | Italy | UK  |
|--|--------|---------|--------|-------|-----|
| Preference for driving vehicles that provide information about public electric vehicle charging and provide navigation | 78%    | 74%     | 79%    | 85%   | 76% |

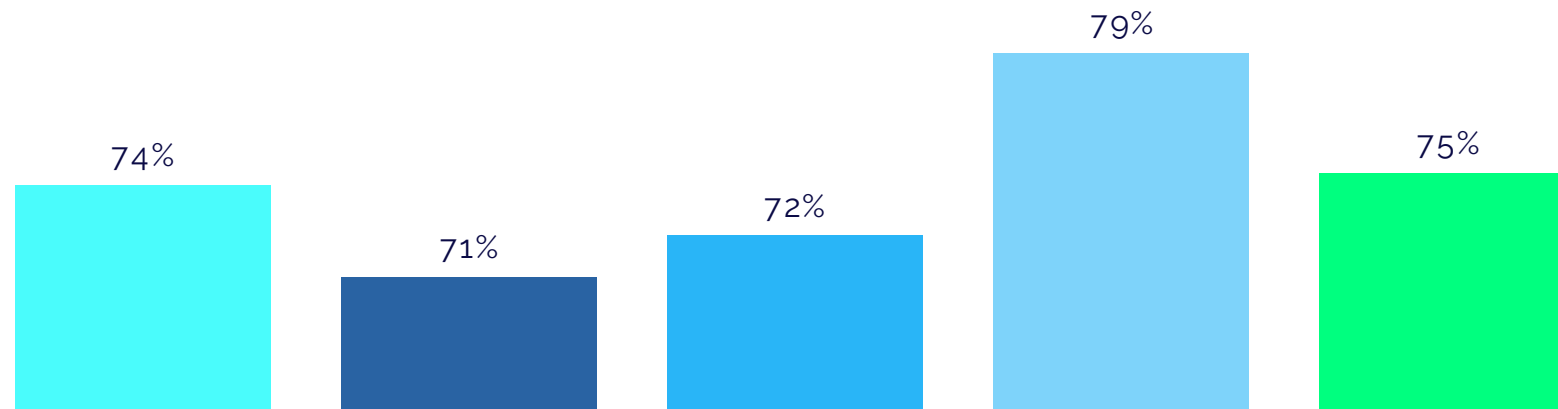


# Would you prefer to drive a vehicle that offers integrated in-car activations and payments for EV charging over an equivalent that does not?

- 74% of European motorists would prefer to drive a vehicle that offers integrated in-car activations and payments for EV charging
- Italian drivers are the most keen to have integrated in-car activation of charge points and payments for charging sessions, at 79%
- As expected, current EV drivers have the greatest appetite for this feature, at 80%, though 74% of ICE drivers would still value this
- Both urban and rural motorists would prefer to have integrated in-car activations and payments for EV charging, though those in cities are more eager, with 76% wanting this functionality compared with 71% of rural drivers



Both urban and rural motorists would prefer to have integrated in-car activations and payments for EV charging, though those in cities are more eager



Preference for driving vehicles that offer integrated in-car activations and payments for electric vehicle charging

■ Europe ■ Germany ■ France ■ Italy ■ UK



# Charging Situation

- Anxiety over finding charging away from home or work
- Running out of charge
- Frequency of challenges to locate a charging point
- Importance of the accuracy of the information received regarding charging points
- Frequency of paying for charging away from home



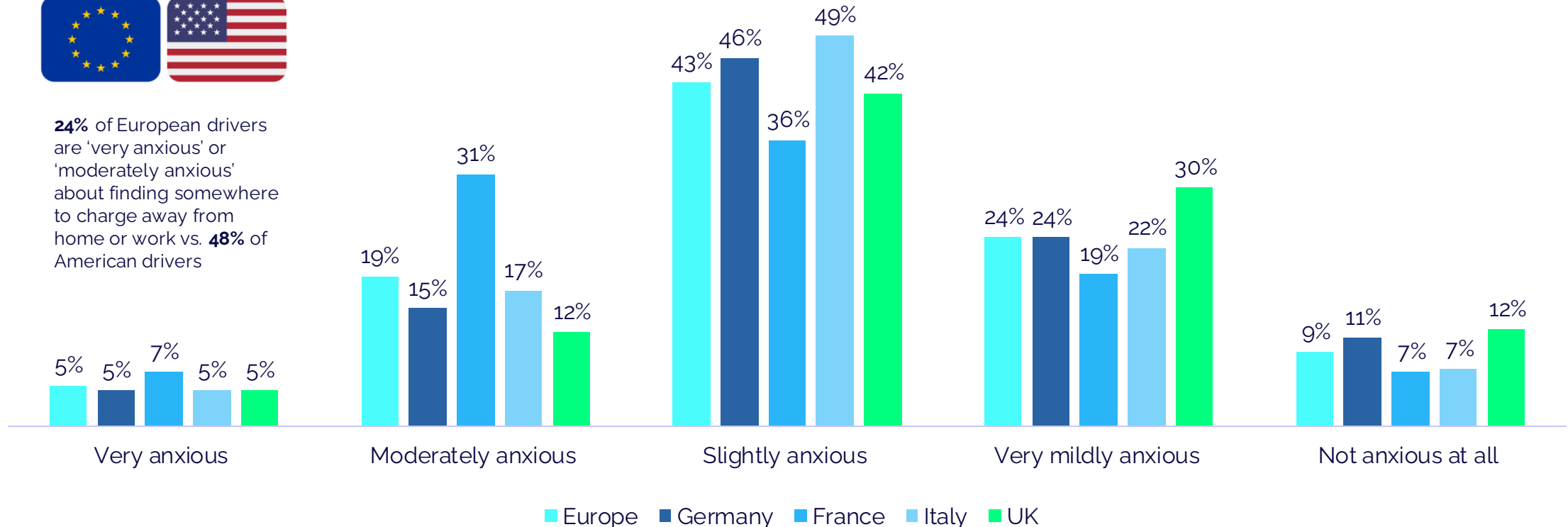


# How anxious do you feel about finding somewhere to charge away from home or work?

- 24% of European drivers are 'very anxious' or 'moderately anxious' about finding somewhere to charge away from home or work
- This shows that while charging is a significant stress factor for many European EV drivers, it is much less significant than for US drivers, with 48% of American drivers classing themselves as 'very anxious' or 'moderately anxious' regarding public charging
- Drivers in France are the most concerned in Europe over finding public charging; 38% are 'very anxious' or 'moderately anxious'
- Both urban and rural drivers are concerned over being able to find charging locations, with urban drivers more likely to be 'moderately anxious' (21% compared with 14%) and rural drivers more likely to be 'very mildly anxious' (27% compared with 23%)



24% of European drivers are 'very anxious' or 'moderately anxious' about finding somewhere to charge away from home or work vs. 48% of American drivers



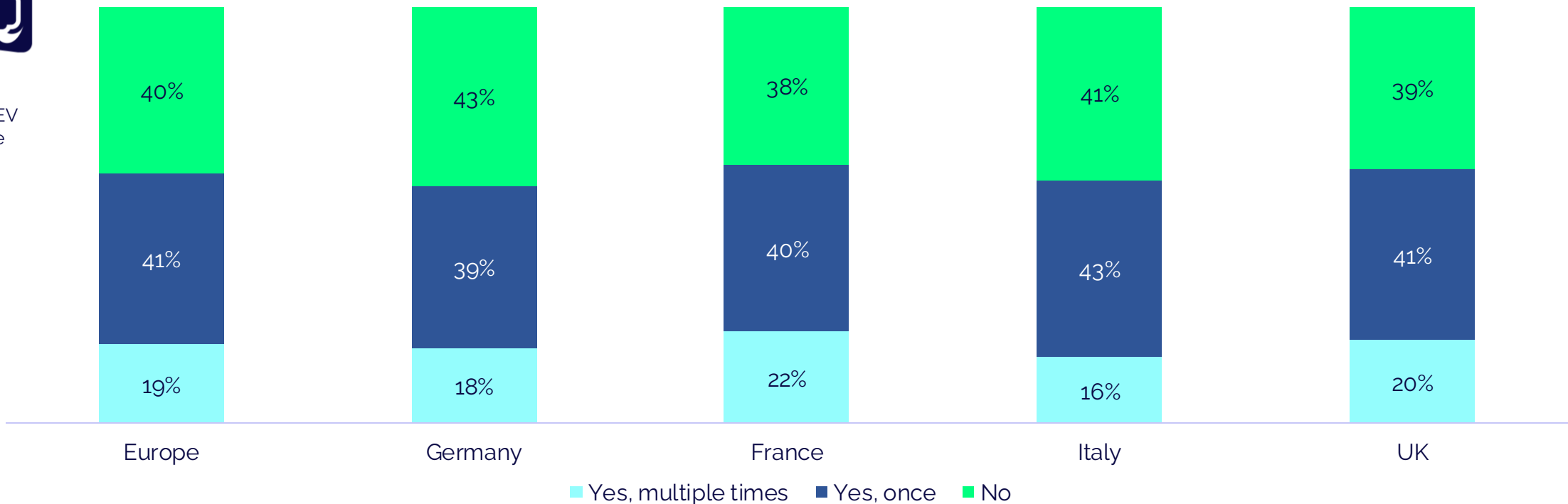


# Have you ever run out of charge?

- 60% of European EV drivers have run out of charge at least once, with 19% doing so multiple times, highlighting widespread issues
- While these levels are high, they are significantly lower than those of US EV drivers, however. 25% of American EV drivers have run out of charge multiple times, with a further 48% running their battery flat once
- 19% of urban and rural drivers have run out of charge multiple times, demonstrating broad issues in finding suitable charging sites
- Rural drivers in Europe are more likely than those in cities to have never run out of charge, however, with 45% falling into this category compared with 39% for urban drivers, with German and Italian drivers least likely to have ever run out of charge



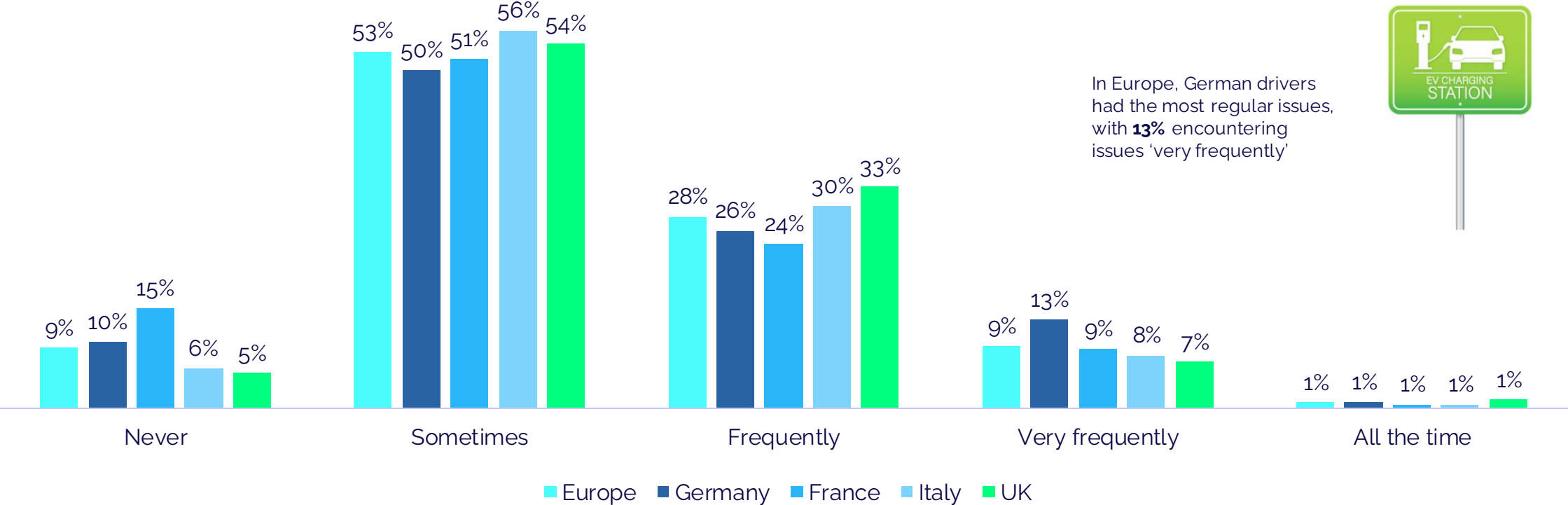
60% of EU EV drivers have run out of charge at least once





# How frequently do you find it challenging to locate a charging point away from home?

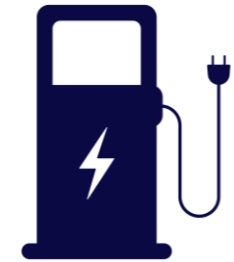
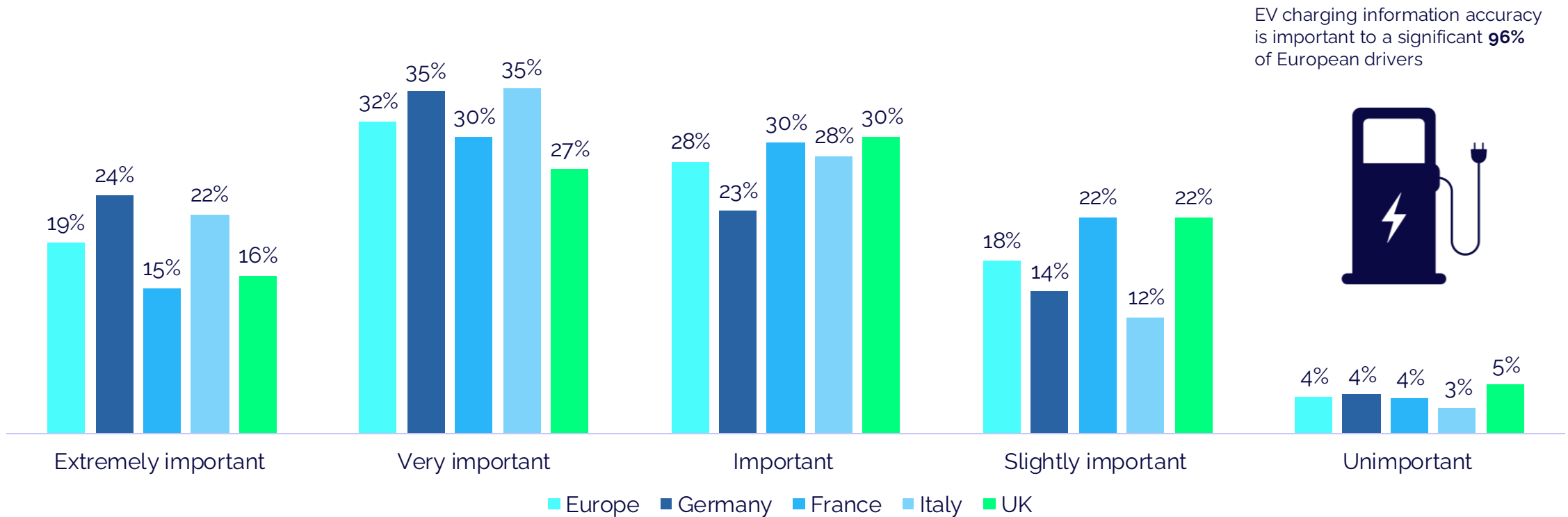
- 28% of European drivers 'frequently' find it challenging to locate an EV charging point away from home, rising to 33% in the UK
- A further 10% of European EV owners have difficulties 'very frequently' or 'all the time', with only 1% falling into this top category
- Drivers in France, meanwhile, are least likely to have issues, with 15% never encountering problems locating charging and a further 51% only 'sometimes' having issues. Those in Germany had the most regular issues, with 13% encountering issues 'very frequently'
- In comparison, EV drivers in the US are far more likely to have problems locating charging 'very frequently' or 'all the time', with 21% having very frequent issues and a further 14% 'all the time', compared with only 1% for the European countries featured





# How important to you is the accuracy of information regarding EV charge points?

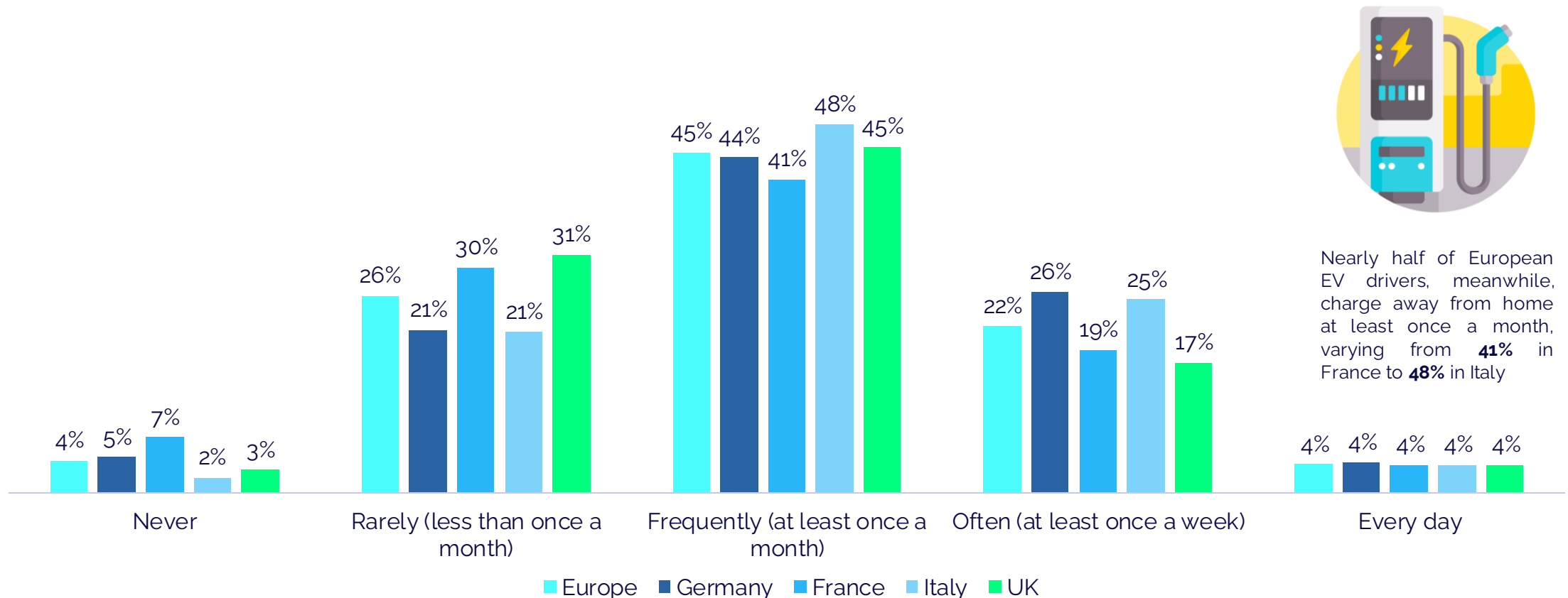
- EV charging information accuracy is important to a significant 96% of European drivers, with 19% deeming it 'extremely important'
- Drivers in Germany and France value the accuracy of charging information particularly highly, with 59% of German motorists and 57% of French drivers considering accuracy to be 'extremely important' or 'very important'
- While high, these figures lag behind those of US drivers, 37% of whom selected 'extremely important' and 34% 'very important'
- UK drivers place the least value in charging information accuracy, though only 5% considered this to be 'unimportant'





# How often do you pay for charging away from home?

- More than a quarter of European EV drivers pay for charging once a week or daily, with greater proportions in Germany and Italy, with 26% of French EV owners charging weekly, alongside 25% of Italian EV drivers
- Nearly half of European EV drivers, meanwhile, charge at least once a month, varying from 41% in France to 48% in Italy
- On the other hand, French drivers are most likely to never pay to charge away from home, with 7% falling into this category and a further 30% using public paid-for charging less than once a month





# Charging Data and Preferences

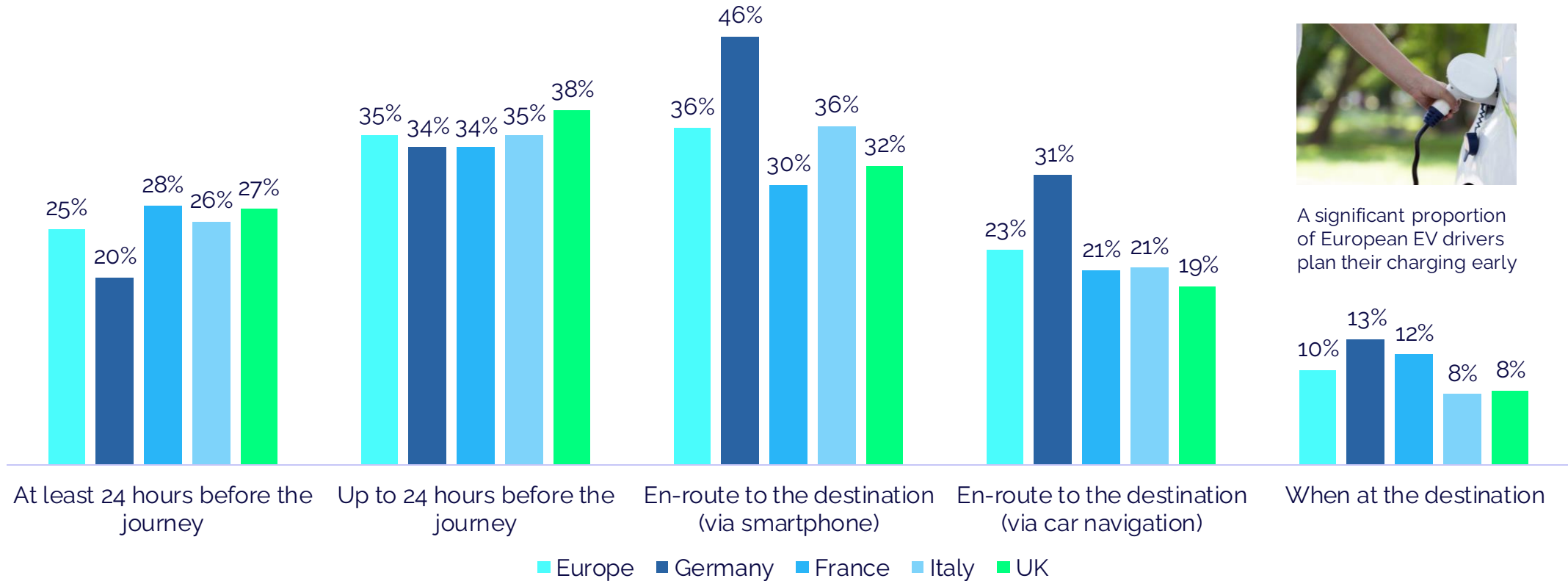
- Time of searching for public charging location
- Factors affecting choice of charging location
- Behaviour at preferred charging locations
- Mode of payment currently used for charging
- Mode of payment most wanted in the future



# When do you normally start searching for a public charging location?



- A significant proportion of European EV drivers plan their charging early, with 25% doing so more than 24 hours ahead and a further 35% doing so up to 24 hours before they need it. A high proportion of British drivers plan ahead, while fewer Germans do this
- UK drivers are most likely to plan their charging, with 27% planning over 24 hours ahead and 38% doing so up to 24 hours ahead
- Only 20% of German motorists search for charging over 24 hours ahead, with 13% leaving finding charging until at their destination
- Rural drivers are more likely to seek public charging more than 24 hours early, with 38% doing so compared with 34% of urbanites
- Urban drivers, meanwhile, are more likely to search en-route, with 38% doing so on their phone compared with 31% of rural drivers and 25% doing so with in-car navigation, compared with 17% of rural drivers, suggesting that charging is harder to find in rural areas



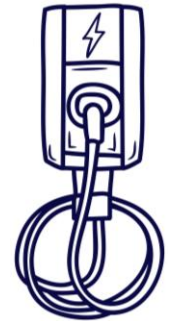
A significant proportion of European EV drivers plan their charging early

# What are the top factors affecting your choice of public charging location?



- The top three factors that affect which public charging location European EV drivers choose are charger availability, cited by 53% of drivers, charging costs, also cited by 53% and the overall distance to the final destination, raised by 51% of motorists
- Payment type is still an important consideration for 43% of EV drivers and parking costs are similarly important, being cited by 42%
- While the ability to reserve chargers and opening times are deemed less important, they are still valuable to a third of respondents
- Being able to reserve chargers is more important to urbanites, affecting how 36% choose charging locations compared with 28% of those in rural areas. Similarly, 44% of urban drivers choose where to charge considering parking costs, against 38% of rural drivers
- Urbanites are more affected by opening times - 34% consider these when choosing chargers compared with 28% of rural motorists

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| <b>Distance to destination</b>                | 51%    | 45%     | 51%    | 50%   | 56% |
| <b>Parking costs</b>                          | 42%    | 45%     | 35%    | 40%   | 49% |
| <b>Charging costs</b>                         | 53%    | 55%     | 53%    | 47%   | 57% |
| <b>Charger availability</b>                   | 53%    | 55%     | 57%    | 46%   | 53% |
| <b>Ability to reserve chargers</b>            | 34%    | 37%     | 36%    | 33%   | 31% |
| <b>Payment type</b>                           | 43%    | 51%     | 38%    | 41%   | 42% |
| <b>Opening times where charger is located</b> | 32%    | 38%     | 28%    | 34%   | 29% |

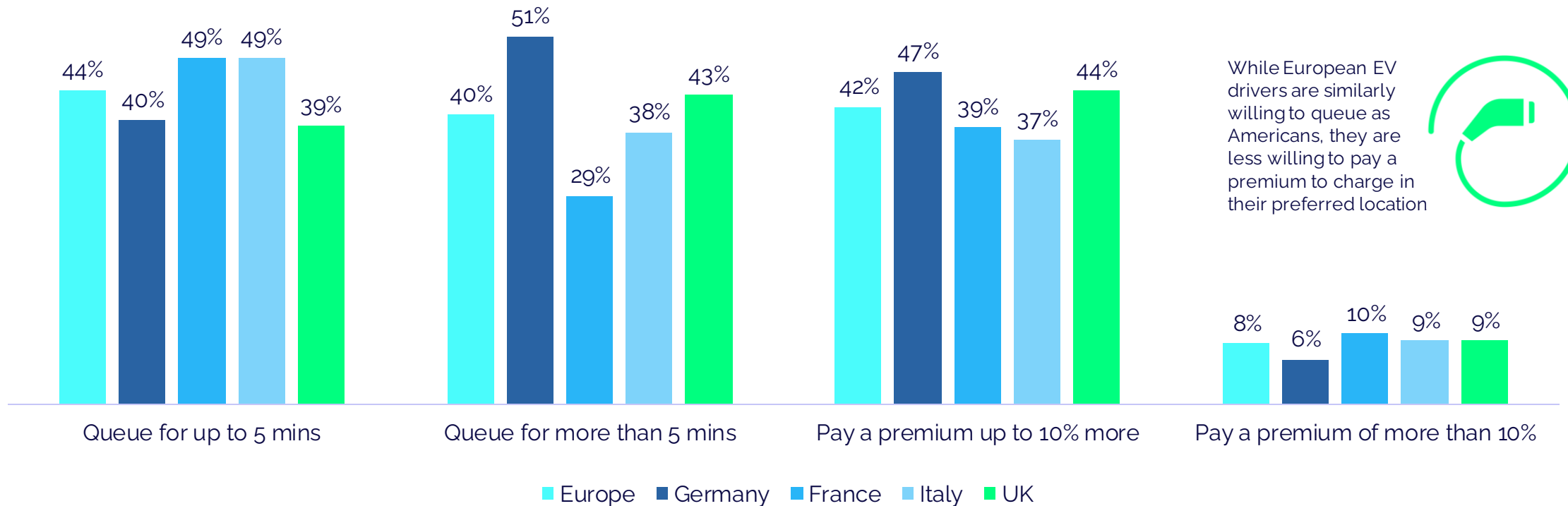


The top three factors that affect which public charging location European EV drivers choose are **charger availability**, **charging costs** and the **overall distance to the final destination**

# What would you be willing to do to charge in your preferred location?



- A significant proportion of Europeans would be willing to wait to charge in their preferred location: 44% would queue for up to five minutes, rising to 49% in France and Italy, with 40% of Europeans open to waiting more than five minutes, including 51% of Germans
- A similar proportion would consider paying a premium of up to 10% more at 42% across Europe, rising to 47% in Germany
- While European EV drivers are similarly willing to queue as Americans, they are less willing to pay a premium to. Though 64% of Americans would pay a premium of up to 10% and 23% more than 10%, these figures stand at just 42% and 8% among Europeans
- Urban EV drivers in Europe are more open to waiting and paying a premium to access their desired charging location than those in rural areas, highlighting that urbanites face greater charging challenges than those in less densely populated areas
- 45% of urbanites would queue up to five minutes, while 42% would wait more than this, compared to 41% and 38% of rural dwellers
- Meanwhile, 43% of urban drivers would pay up to 10% extra and 9% more than 10% extra, compared with 38% and 7% respectively



# How do you pay for charging currently?



- The most commonly used charging payment methods are contactless payment (28%), card (26%) and via an app/website (23%) – all digital formats - with cash payments only being used by 17% of Europeans, reaching highs of 18% in Germany and 21% in Italy
- Contactless payment is particularly widely used in the UK; 36% of EV drivers use this compared with a European average of 28%
- Meanwhile, card at location is popular in France, with 32% of French EV drivers using this compared with a 26% European average
- Plug & Charge, however, is particularly widely used in Germany, being cited by 22% of Germans compared with 18% across Europe

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| <b>Card at location</b>   | 26%    | 23%     | 32%    | 27%   | 24% |
| <b>Contactless payment systems at location</b>                                    | 28%    | 26%     | 28%    | 23%   | 36% |
| <b>Advance payment through charging website/app</b>                               | 16%    | 17%     | 18%    | 16%   | 12% |
| <b>Via an app or website at the time of charging</b>                              | 23%    | 28%     | 18%    | 28%   | 17% |
| <b>RFID charge card</b>   | 11%    | 14%     | 12%    | 7%    | 12% |
| <b>In-car payment option</b>  | 13%    | 16%     | 10%    | 16%   | 11% |
| <b>Plug &amp; Charge: you plug-in and your account gets charged automatically</b> | 18%    | 22%     | 13%    | 17%   | 18% |

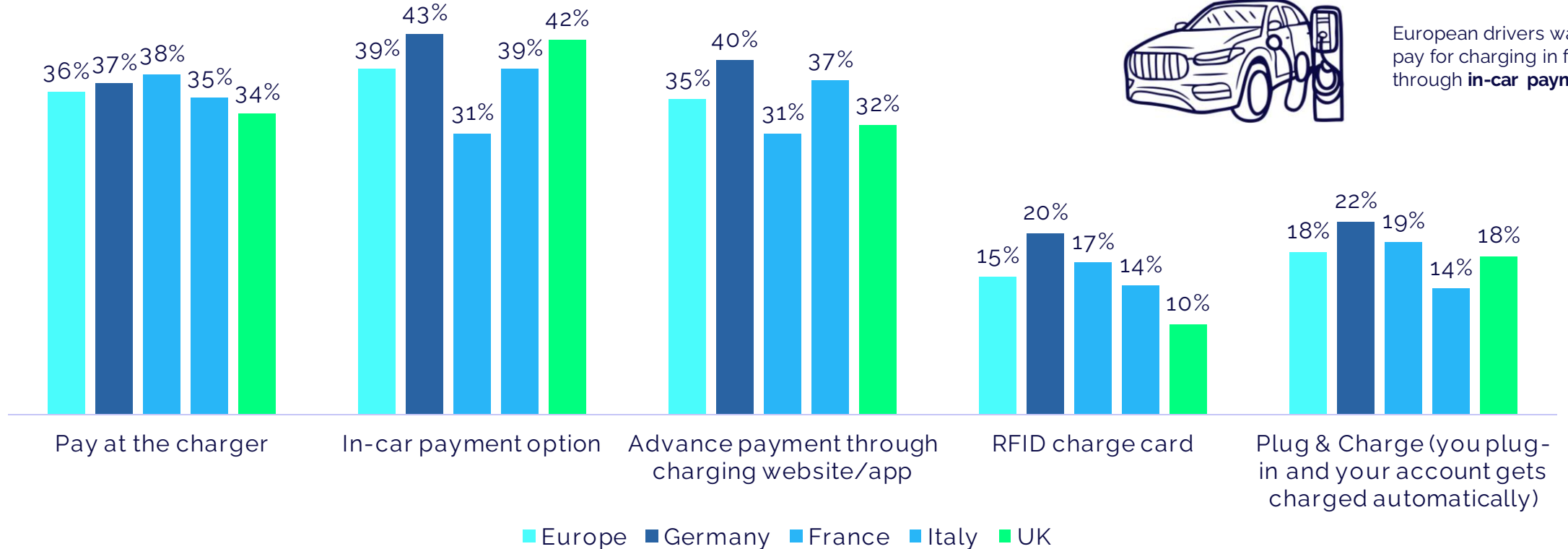


The most commonly used charging payment methods are **contactless payment**, **card** and **via an app/website**

# In the future, how would you like to pay for charging?



- European drivers' preferred payment method for charging in future is in-car payment, with 39% wanting to use this format. This option is particularly popular in Germany and the UK with 43% of German and 42% of British EV drivers preferring this payment type
- Urban drivers are particularly keen on in-car payments; 41% want to use this method in future compared with 33% in rural areas
- Paying at the charger (36%) and advance payment through a charging website/app (35%) are the next most popular options
- RFID cards, meanwhile, are not popular in any of the European countries surveyed, supporting figures from other reports that show that many EV drivers do not want to have to rely on having so many separate charging accounts with individual RFID cards





# Charging and Fines

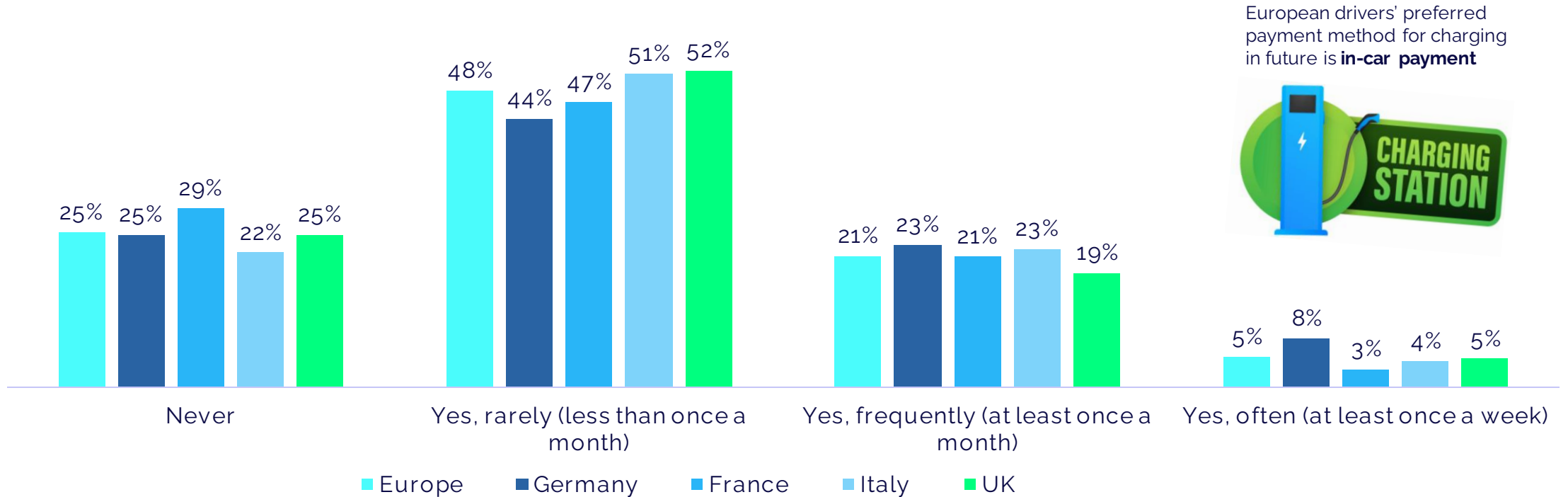
- Failure to locate EV charging points
- Issues encountered while charging/attempting to charge
- Fines issued while charging
- Ways in which fines could have been prevented





# Have you ever failed to locate an EV charging point you were trying to navigate to, using your in-car media system?

- Three-quarters of European EV drivers have failed to find a charging point that they wanted to use, implying widespread issues in how accurately charging points are logged on many in-car navigation systems and how obvious charging points are at the location
- 5% of EV drivers across Europe have experienced issues finding charge points at least once a week, though this is notably lower than the 22% figure recorded amongst EV drivers in the US, hitting a high of 8% among German EV owners
- Urban drivers encountered a greater difficulty than those in rural areas, with 25% of urbanites having monthly issues compared with 12% of rural dwellers. Furthermore, 31% of rural drivers never experienced problems compared with only 23% of those in cities



# Which of these have you experienced while charging/attempting to charge in public?



- A significant proportion of European EV drivers have encountered issues finding, accessing and paying for public charging
- The greatest issues facing EV drivers in Europe are out of order chargers, encountered by 46% of those across Europe and chargers being occupied by another vehicle, a problem cited by 45% across the four European countries surveyed
- Chargers being occupied by other vehicles was a significant problem in Germany, with 51% of German EV drivers raising this, while out of order chargers were particularly problematic in the UK, being cited by 50% of UK EV drivers
- Competition for chargers is a bigger problem in urban areas, with 47% of urbanites raising this compared with 41% of rural dwellers
- Meanwhile, being unable to access chargers is more problematic in rural areas; 29% cited this compared with 26% in urban areas



The greatest issues facing EV drivers in Europe are **out of order chargers**

|   | Europe | Germany | France | Italy | UK  |
|---|--------|---------|--------|-------|-----|
| <b>Not being able to find desired charger</b>                       | 23%    | 25%     | 20%    | 23%   | 26% |
| <b>Inability to access charger (eg. located in closed car park)</b> | 27%    | 30%     | 25%    | 25%   | 28% |
| <b>Charger being out of order</b>                                   | 46%    | 47%     | 46%    | 42%   | 50% |
| <b>Charger occupied by another vehicle</b>                          | 45%    | 51%     | 45%    | 44%   | 41% |
| <b>Inability to access account/payment method</b>                   | 15%    | 17%     | 13%    | 14%   | 15% |
| <b>Charger incompatible with car</b>                                | 7%     | 10%     | 7%     | 5%    | 6%  |

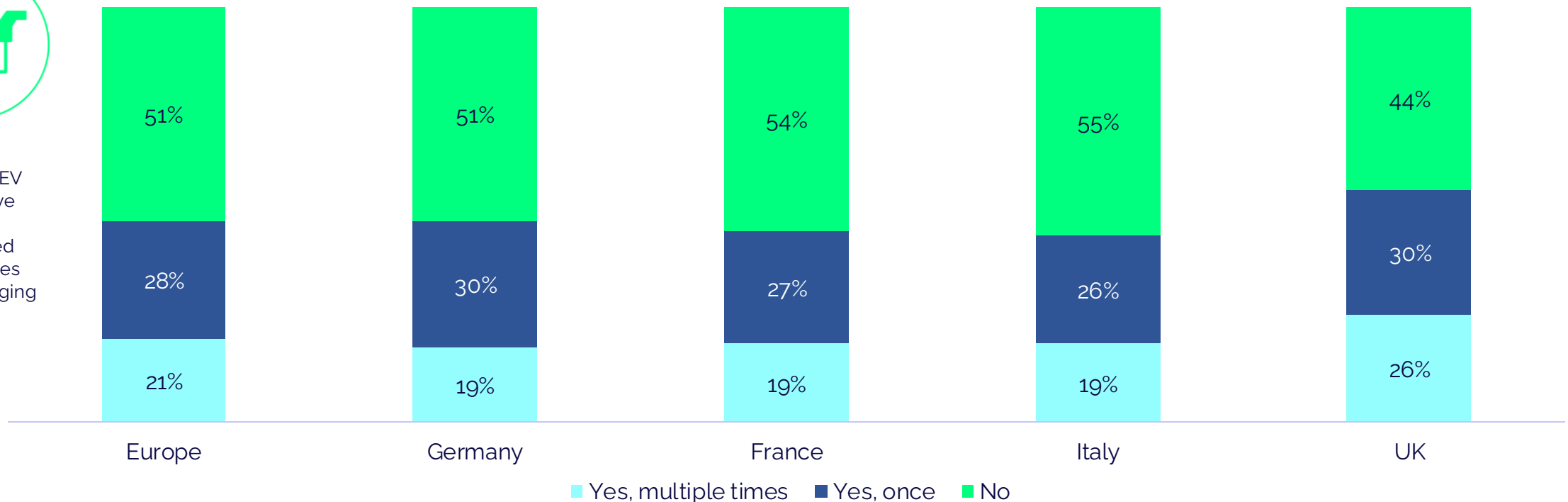


# Have you ever been issued with a parking fine while charging an electric vehicle, without realising that you would be fined?

- 49% of European EV drivers have received unexpected parking fines while charging, with those in the UK having particular issues
- 26% of British EV drivers have received multiple unexpected parking fines while charging, with 30% of UK and German EV drivers also receiving one unexpected parking fine while plugged in.
- This suggests that parking restrictions are often inadequately displayed at charging sites across Europe, highlighting the importance of accurate parking and charging information being provided together to prevent drivers unnecessarily receiving fines
- A very similar proportion of rural and urban drivers have received fines, showing that this is a widespread problem across all areas



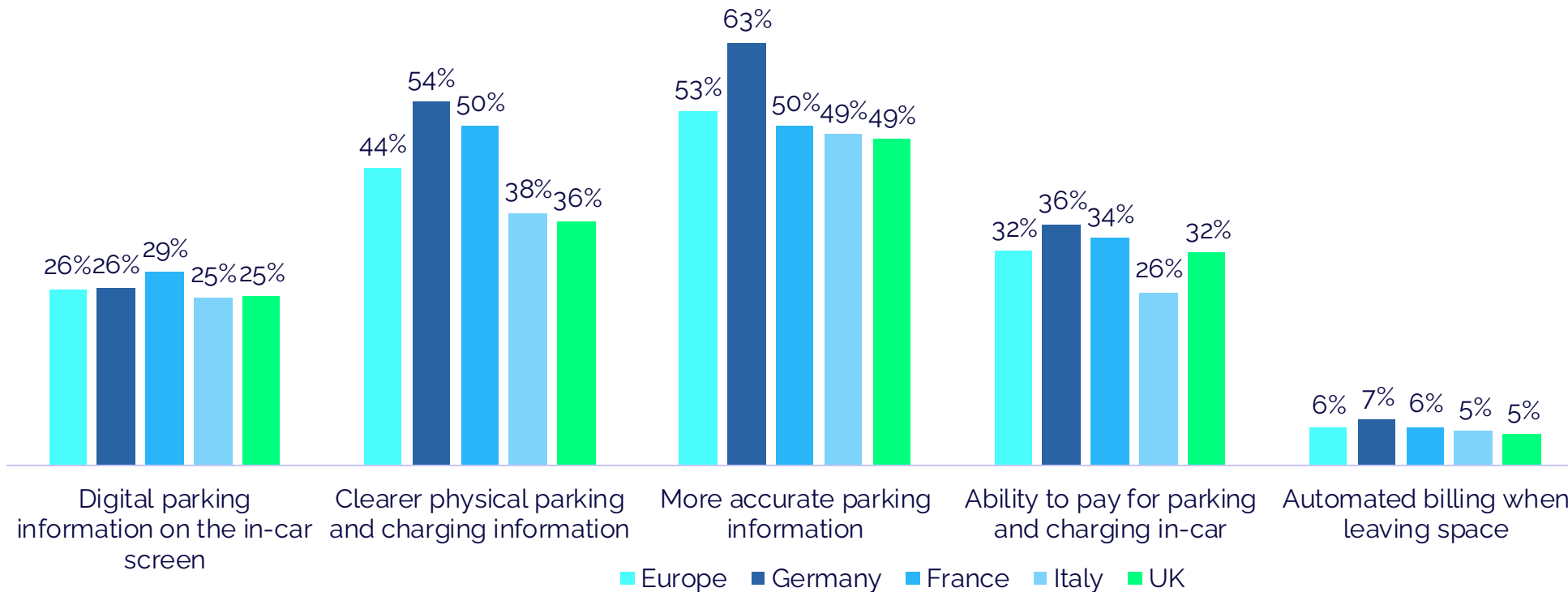
49% of European EV drivers have received unexpected parking fines while charging



# What would have prevented you being fined in that scenario?



- 53% of European EV drivers who have been fined while parking, believe more accurate information would have prevented this
- A particularly high 63% of German EV drivers believe that more accurate parking information would have helped them avoid fines
- Meanwhile, 44% of European EV drivers think that clearer physical parking and charging information would have made a difference, including 54% of German EV drivers and 50% of French motorists with EVs
- A third of drivers also thought that in-car payments for parking and charging would have prevented them from being fined
- Digital parking information on the car's infotainment system was cited as a solution by more than a quarter of European EV drivers
- More accurate parking information was similarly important to rural and urban drivers, though a greater proportion of urbanites valued clearer physical parking and charging information at 48% compared with 34% of rural drivers
- In-car payment was also more important to urban drivers, with 34% seeing this as a solution compared with just 26% of rural drivers



**53%** of European EV drivers who have been fined while charging, believe more accurate information would have prevented this



# Preference of Connected Features

- Connected Car features requested by drivers
- Payment features desired by drivers
- In-car commerce options wanted within media systems
- Value of features that are made possible by indoor maps

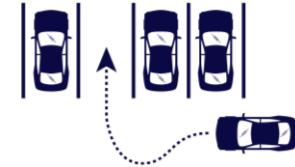


# Which of the following features would you like your car to offer?



- European drivers have a strong appetite for greater connected car services in their vehicles, with automatic guidance to parking and charging locations nearest their destination and those with the greatest likelihood of availability being particularly popular
- Automatic guidance to locations with likely parking/charging station availability is wanted by 50% of European drivers while automatic guidance to car parking/charging locations closest to their destination being similarly popular, wanted by 48% of drivers
- Demand for both of these features is strongest in Germany, with high demand levels also seen in the UK and France
- Meanwhile, automatic payment for parking/charging and personalised parking/charging recommendations are very nearly as in demand, with 46% and 45% of Europeans respectively wanting these features

Automatic guidance to locations with likely parking/charging station availability is wanted by **50%** of European drivers



|  | Europe | Germany | France | Italy | UK  |
|--|--------|---------|--------|-------|-----|
| <b>Personalised parking/charging recommendations</b>   | 45%    | 45%     | 41%    | 44%   | 50% |
| <b>Automatic guidance to locations with likely availability close to your destination</b>        | 50%    | 53%     | 52%    | 44%   | 52% |
| <b>Automatic guidance to the parking location/charger closest to the destination</b>             | 48%    | 56%     | 48%    | 41%   | 49% |
| <b>Automatic payment for on-street parking/charging (automatic recognition of location/cost)</b> | 46%    | 43%     | 47%    | 48%   | 46% |
| <b>Automatic opening of car park gates and monthly invoicing</b>                                 | 26%    | 26%     | 26%    | 29%   | 24% |
| <b>Reservation and pre-payment</b>   | 14%    | 11%     | 9%     | 22%   | 14% |

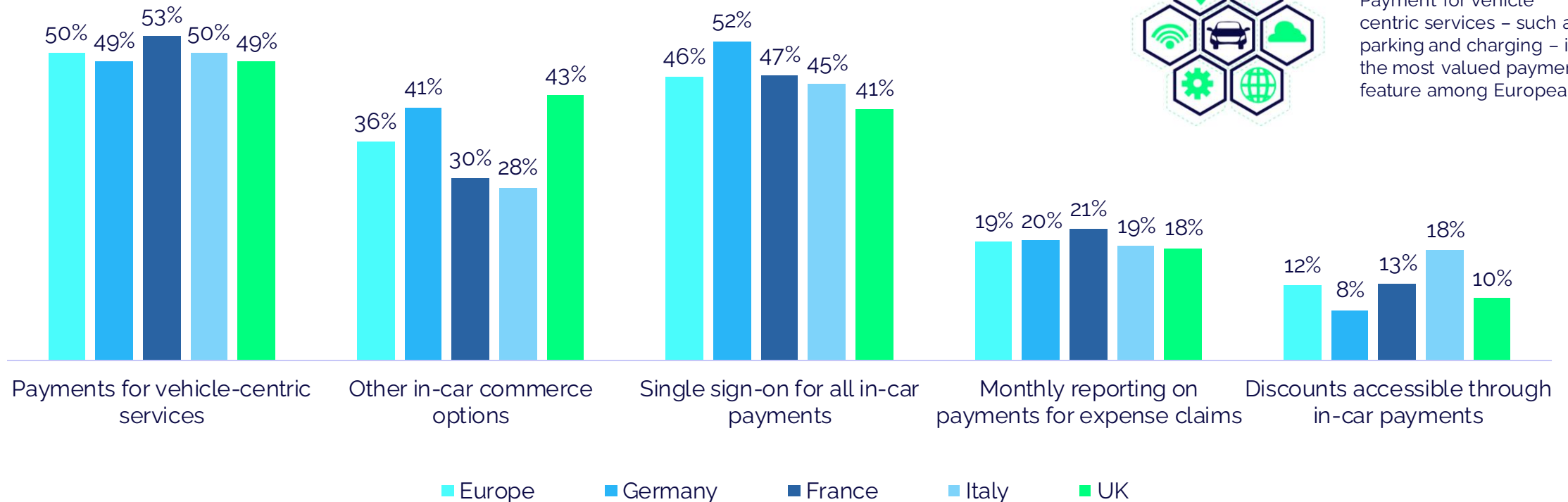
# Which payment features would you value in your car's integrated media system?



- Payment for vehicle centric services – such as parking and charging – is the most valued payment feature among Europeans, being wanted by 50% of drivers, making this significantly more in demand than other in-car commerce options, wanted by just 36%
- Single Sign-On functionality, which enables drivers to access all in-car payment options through one account is also wanted by a high proportion of drivers, with 46% of Europeans wanting this, including 52% of German motorists
- Rural and urban drivers see similar value in Single Sign-On functionality, however urban drivers' top payment priority is being able to pay for vehicle-centric services through their car; 53% of urban dwellers want this compared with just 45% of those in rural areas



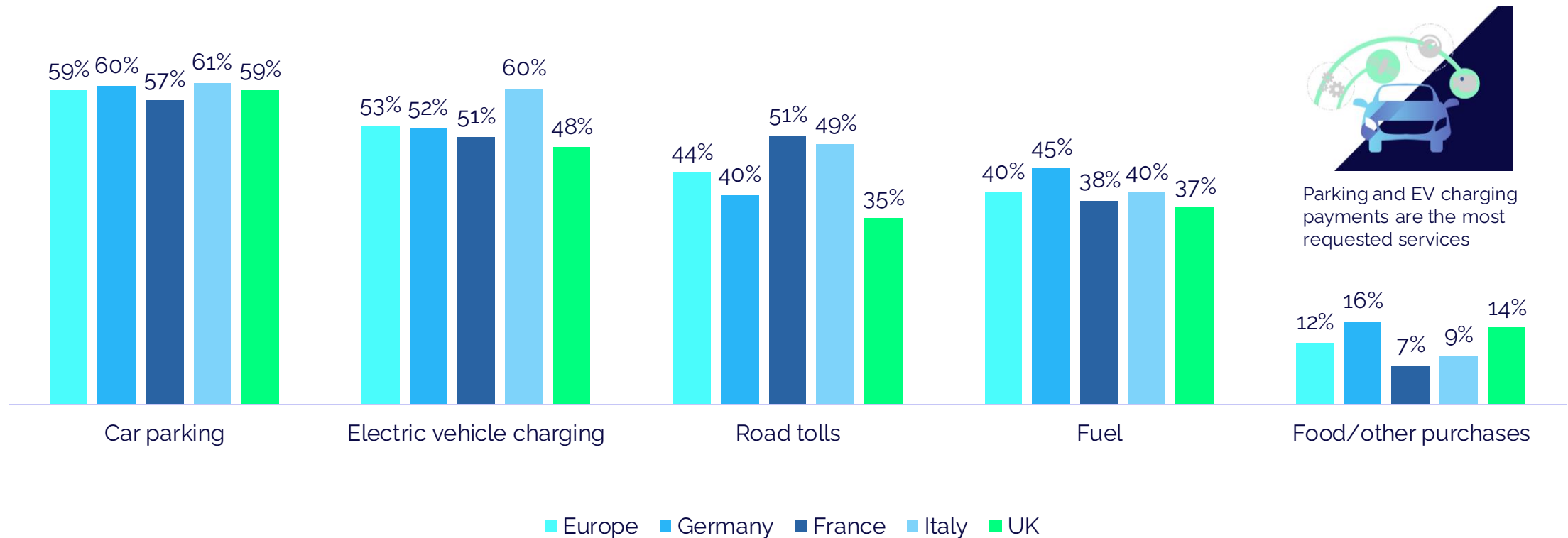
Payment for vehicle centric services – such as parking and charging – is the most valued payment feature among Europeans



# Which in-car commerce options would you like through your car's media system?



- Paying for vehicle-centric services is the most popular use of in-car payments, though demand for individual services varies
- Car parking is the most wanted in-car commerce option; 59% of European drivers want to be able to pay for parking from their car
- Electric vehicle charging is the second most wanted in-car commerce option, demanded by 53% of European motorists. Drivers in Italy had the highest demand for this feature, with 60% wanting to have it
- A significant proportion of European drivers would value the option to pay for road tolls through their car's media system, at 44%
- In-car fuel payments are also in significant demand, with 40% of Europeans valuing this functionality, rising to 45% in Germany
- Being able to pay for car parking is most important to urban drivers, 62% of whom want this, compared with 54% of rural dwellers
- Similarly, urban drivers have more interest in paying for charging from their car; 54% want this compared with 51% of rural drivers



Parking and EV charging payments are the most requested services

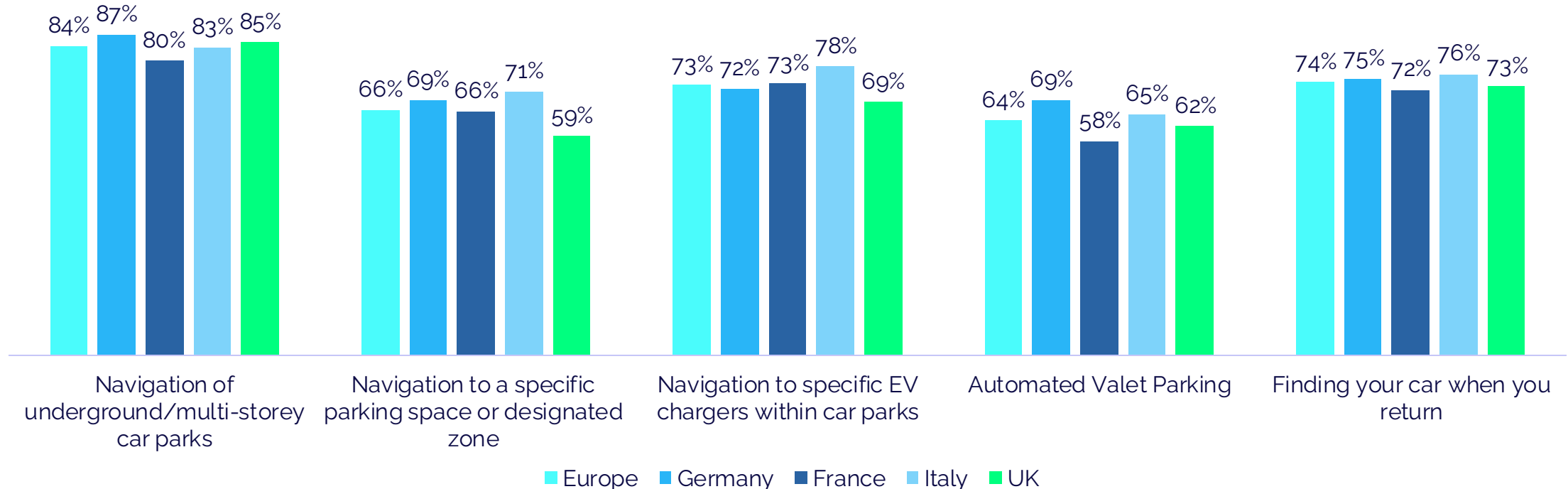
# Indoor navigation is often not possible with standard navigation, as buildings can block GPS signals. Would you value any of the following features made possible by indoor mapping?



- Drivers across Europe have a significant appetite for indoor navigation functionality to simplify the parking process
- Navigation of underground/multi-storey car parks is the most valued indoor mapping feature wanted by 84% of European drivers
- Assistance with finding their car when returning to the car park is the second most valued feature wanted by 74% of Europeans
- Meanwhile, 73% of drivers requested navigation to specific EV chargers within car parks, highlighting that finding charging is a significant problem for nearly three-quarters of European drivers



Navigation around underground/multi-storey car parks is the most valued indoor mapping feature



# Research Methodology



| Methodology   | Sample size  | Date  | Countries   | Demographic  | Vehicle Types  | Key topics  |
|---|--|---|---|--|--|---|
| <p><b>Independent survey: Online quantitative research</b></p> <p>Screening questions to Understand drivers' personal and car ownership situation <b>(focusing on those whose main car is a connected car that is less than five years old)</b> along with 42 questions covering drivers' parking and charging habits</p> | <p>2440 respondents including 1220 EV drivers.</p> <p><b>Weighting</b><br/>For questions answered by ICE and EV drivers, EV drivers' responses have been weighted to reflect the proportion of EVs on the road in the respective country</p> | <p>May 2023</p> <p>Research was carried out by international market research company <b>Borderless Access</b></p> | <p><b>Germany</b> (305 ICE drivers, 305 EV)</p> <p><b>France</b> (305 ICE drivers, 305 EV)</p> <p><b>UK</b> (305 ICE drivers, 305 EV)</p> <p><b>Italy</b> (305 ICE drivers, 305 EV)</p> | <p><b>Gender:</b><br/>Male: 54%<br/>Females: 46%<br/>Other: 0%<br/>Prefer not to say: 0%</p> <p><b>Age:</b><br/>18-24: 23%<br/>25-39: 42%<br/>40-54: 26%<br/>55-69: 8%<br/>70+: 1%</p> <p><b>Location:</b><br/>Urban: 69%<br/>Rural: 31%</p> | <p><b>Internal Combustion Engine (ICE) cars</b> (50% of respondents)</p> <p><b>Electric Vehicles (EV)</b> (50% of respondents). Drivers were only taken into account where their main car is an EV</p> | <p><b>Parking habits (and charging habits for EV drivers)</b> plus the problems faced during daily motoring and when using <b>connected car services such as parking, EV charging and in-car commerce</b></p> |