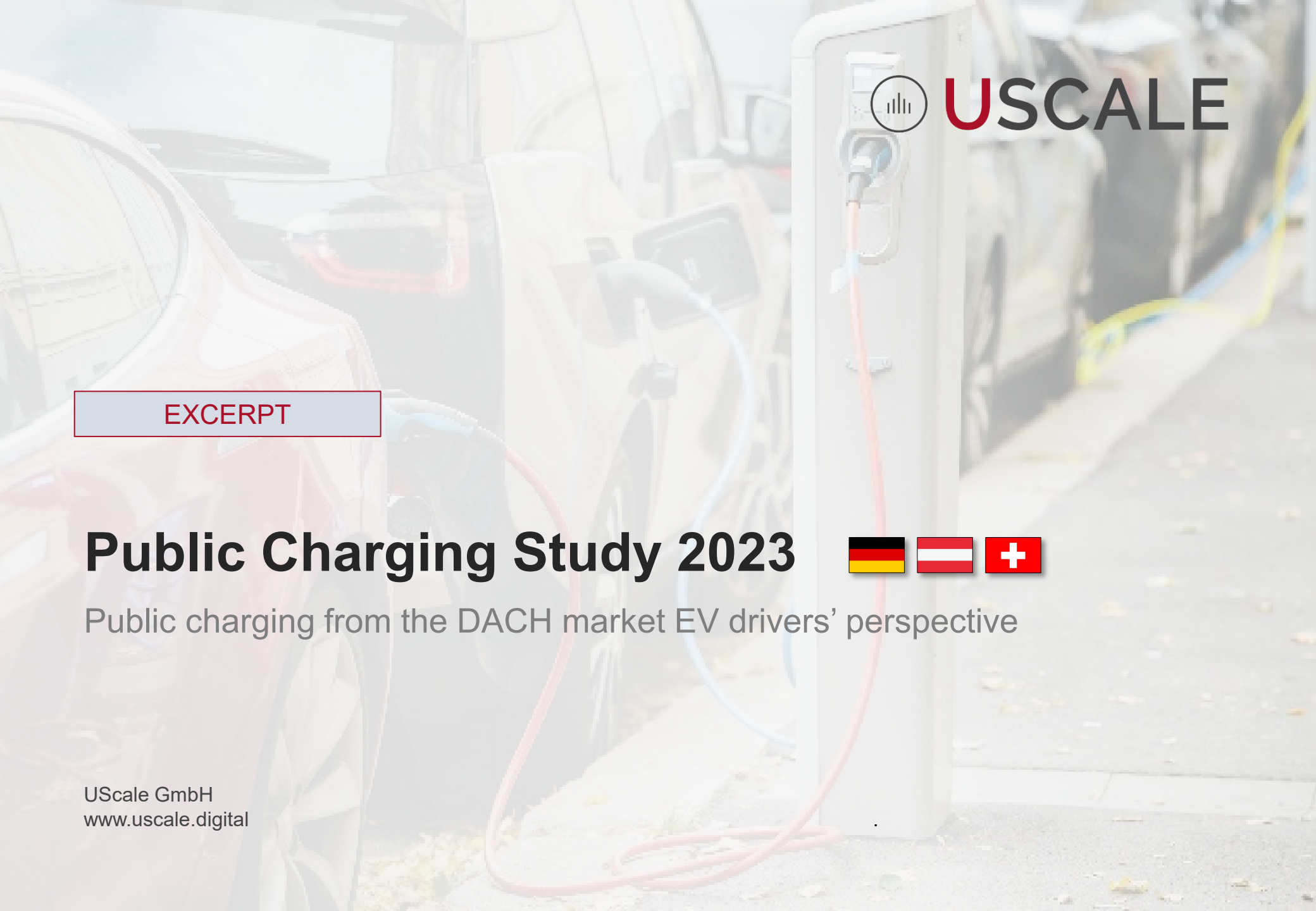


USCALE

EXCERPT

Public Charging Study 2023

Public charging from the DACH market EV drivers' perspective

UScale GmbH
www.uscale.digital

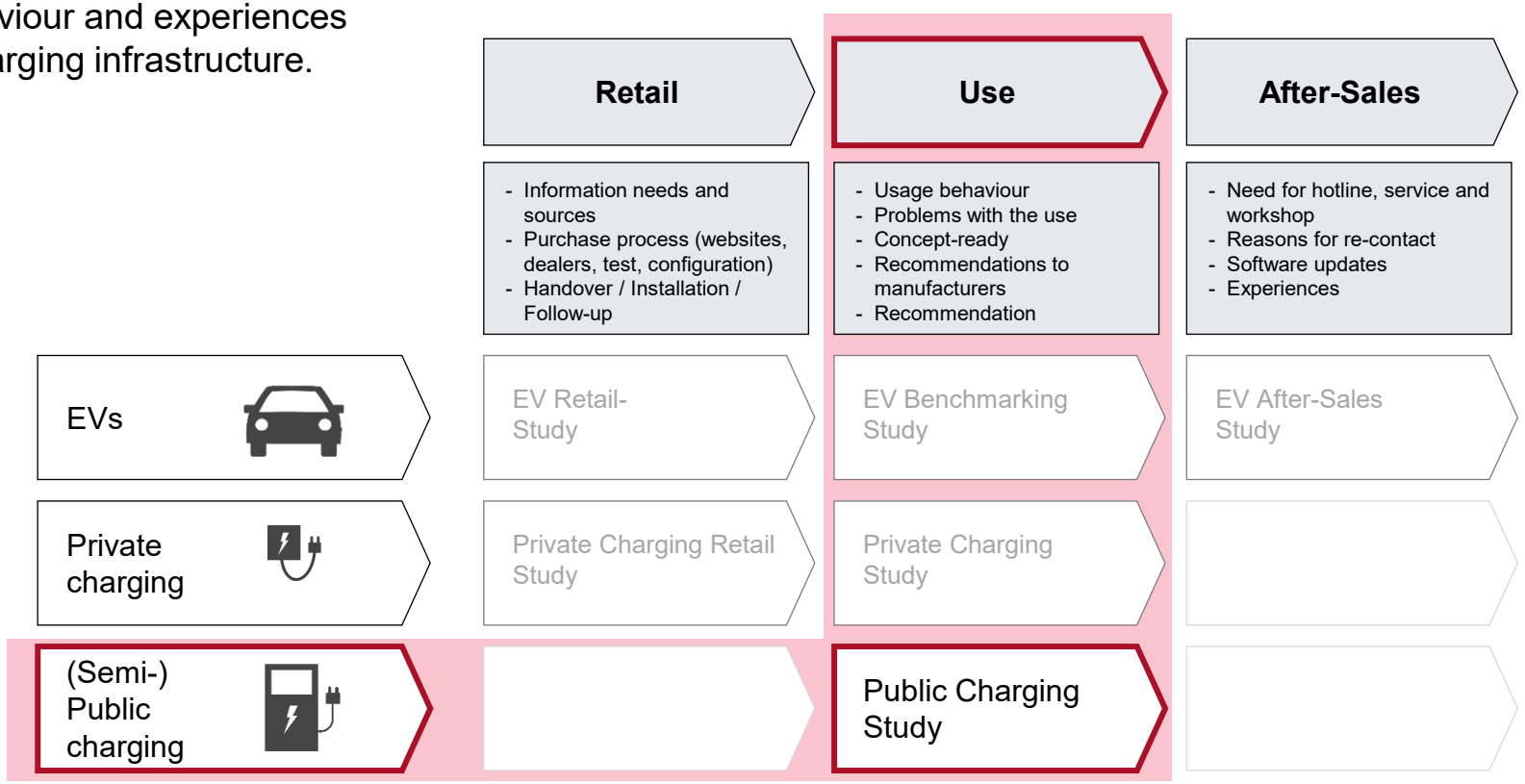
Initial situation

In August 2023, the share of fully battery-electric vehicles in Germany was 14% of 2023 registrations. As vehicle availability increases, this share will continue to grow rapidly and increase the pressure on the public charging infrastructure.

In order to develop and offer the right charging services, all providers in the market need to understand the EV drivers' charging behaviour and expectations.

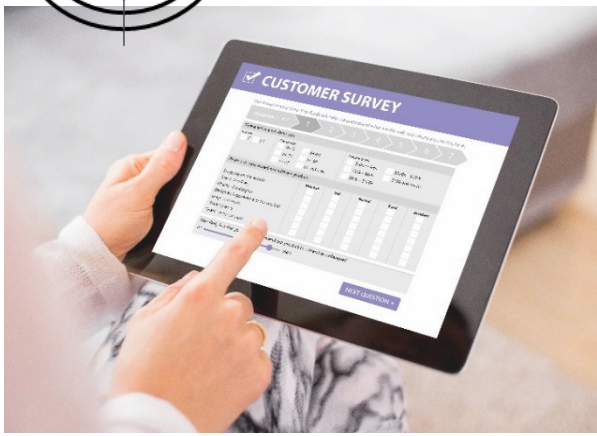
Survey structure

The study asks EV drivers* about their charging behaviour and experiences with public charging infrastructure.



* EV in this study refers only to full battery electric vehicles

Target group



Survey:

- Target group: Electric car drivers (BEV only)
- Sampling: online
- Markets: DACH
- Recruitment: Social Media, Access Panel
- Survey: together with Private Charging Study
- Interview duration: 15 - 20 min
- Field phase: May - July 2023

Sample:

- Total sample: N = 3,075 (chapter 2)
- Thereof:
  Sample for Public Charging:
  - Charging at public: N = 1,492 (chapter 3)
  - Charging at retail: N = 1,025 (chapter 4)
  - Charging at work: N = 1,013 (chapter 5)

total: responses from
N = 2,436 participants

Added value of the study

Time

Comprehensive, quantitative and qualitative customer input saves time in developing and revising the specifications for the relevant use cases.

Costs

Product concepts are usually blocked and fixed for a long time. The early design of the concepts to the expectations of the users reduces changes and saves considerable costs.

Market share

In the current market with many new entrants, manufacturers, operators and service providers can gain market share with the right offers.

Diffusion

Manufacturers who meet or exceed customer expectations of products and services support the successful ramp-up of eMobility.

Working with the study

Manufacturers and operators of charging infrastructure

The study shows manufacturers and operators of charging technology how users charge and what problems they have. This helps in the development of new products, the prioritisation of features and the definition of customer benefit criteria.

Car manufacturers

The survey shows how target groups use various charging use cases and what needs they experience. This helps them to improve their products.

Employers

The study shows which requirements have to be met so that charging offers are perceived as helpful for employees and generate the desired employee loyalty.

Retail and hotel industry

For providers of semi-public charging infrastructure, the results underline the enormous potential for customer loyalty and increased sales that charging offers and main levers to increase loyalty.

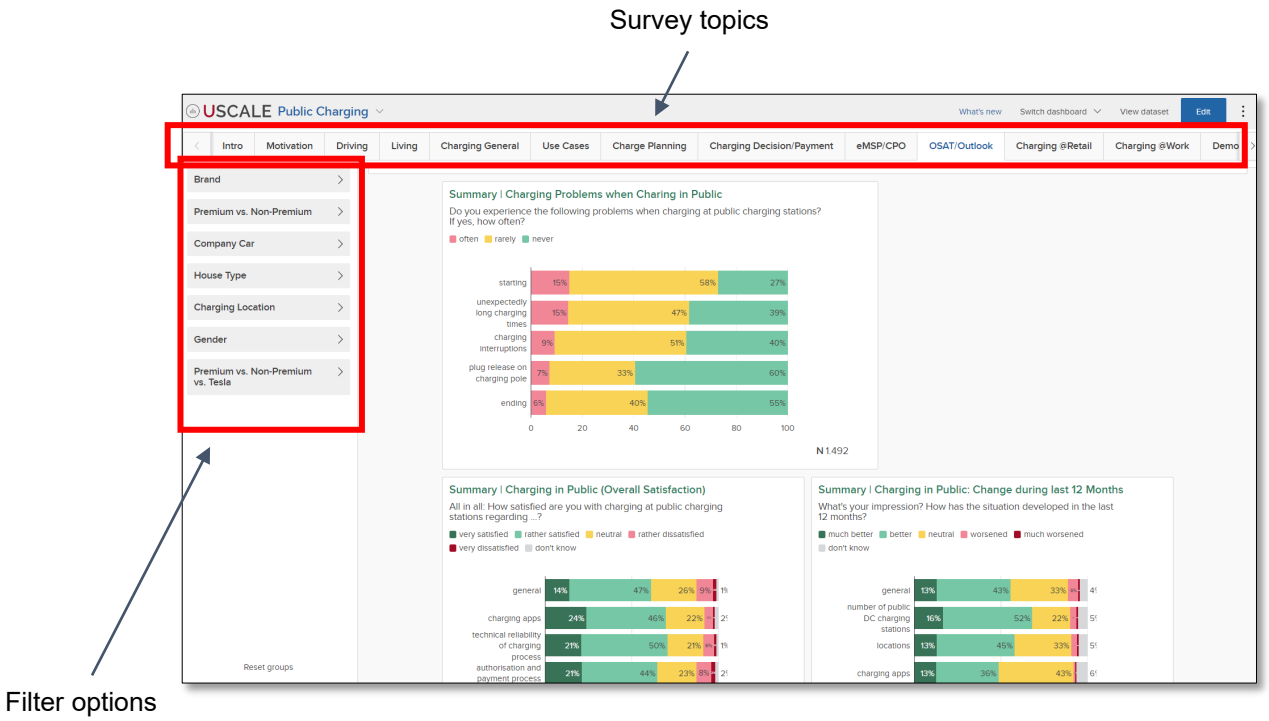
Dashboard for own analysis

Deep dives on individual brands, models and subgroups.

This document only shows selected data splits.

In the associated dashboard, further splits between different customer groups can be carried out.

To register, please contact kontakt@uscale.digital.



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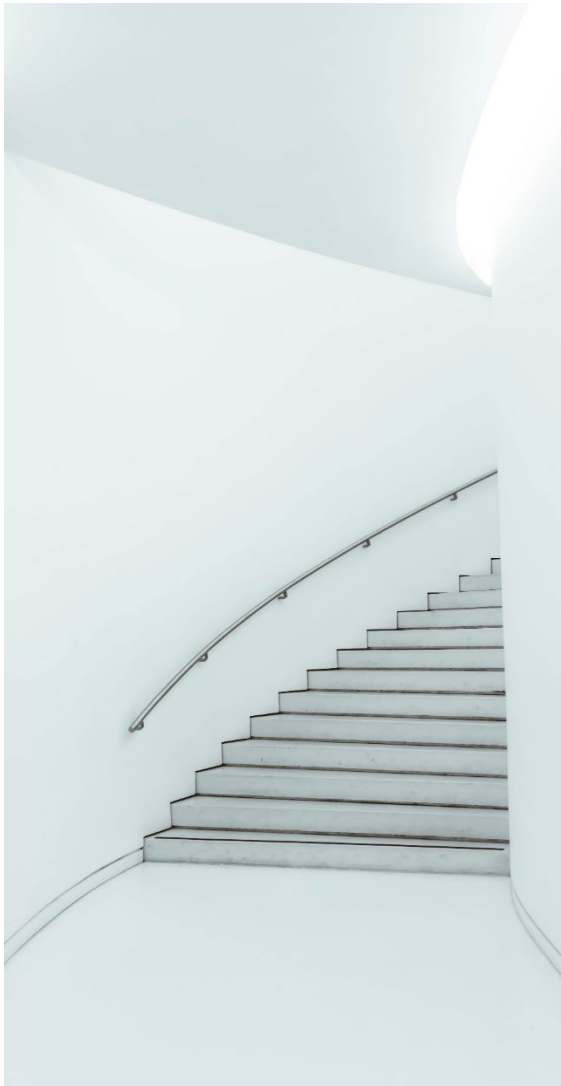
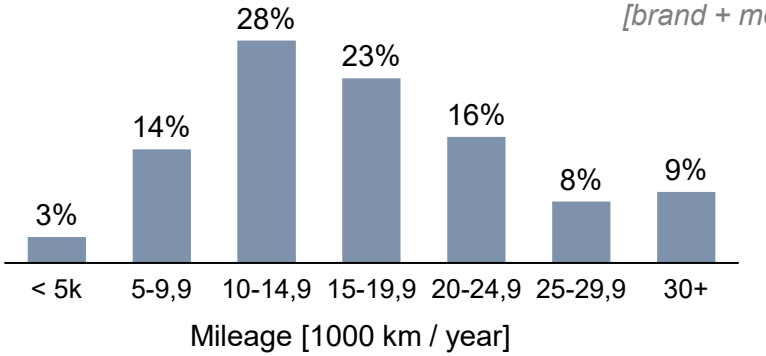


Driving performance

EVs with above-average driving performance.

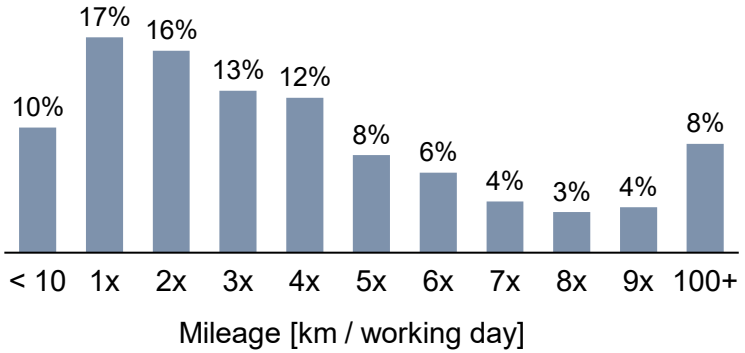
The average annual mileage of the surveyed owners is significantly higher than that of combustion vehicles at 12,670 km / year*.

"Approximately how many kilometres do you drive your [brand + model] per year?"



N = 3075

"What is your mileage with your [brand + model] on an average weekday?"



N = 3075

* DAT Report 2023

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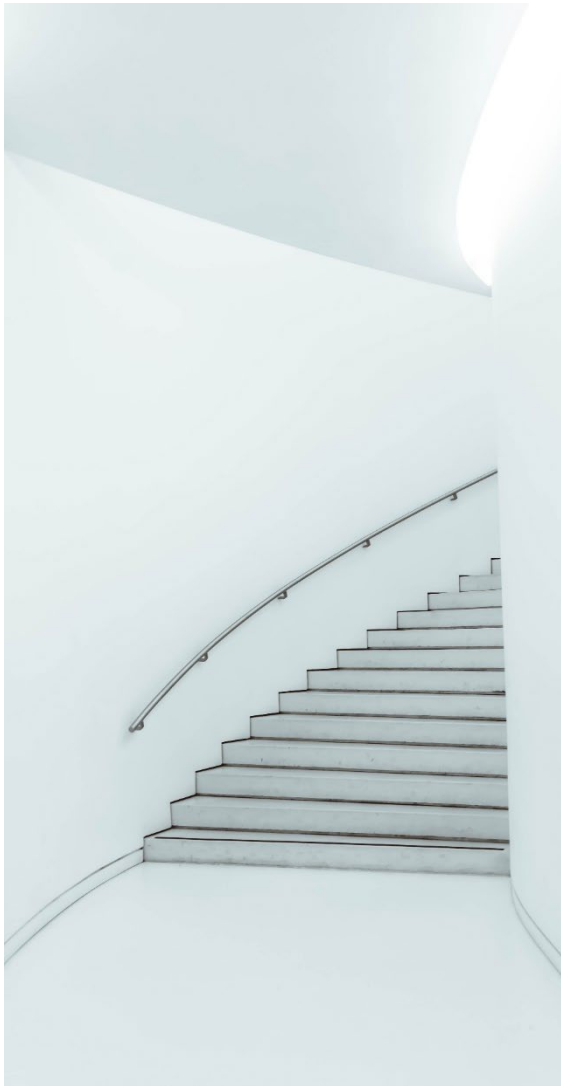


Charging locations

The importance of almost all charging offers is increasing.

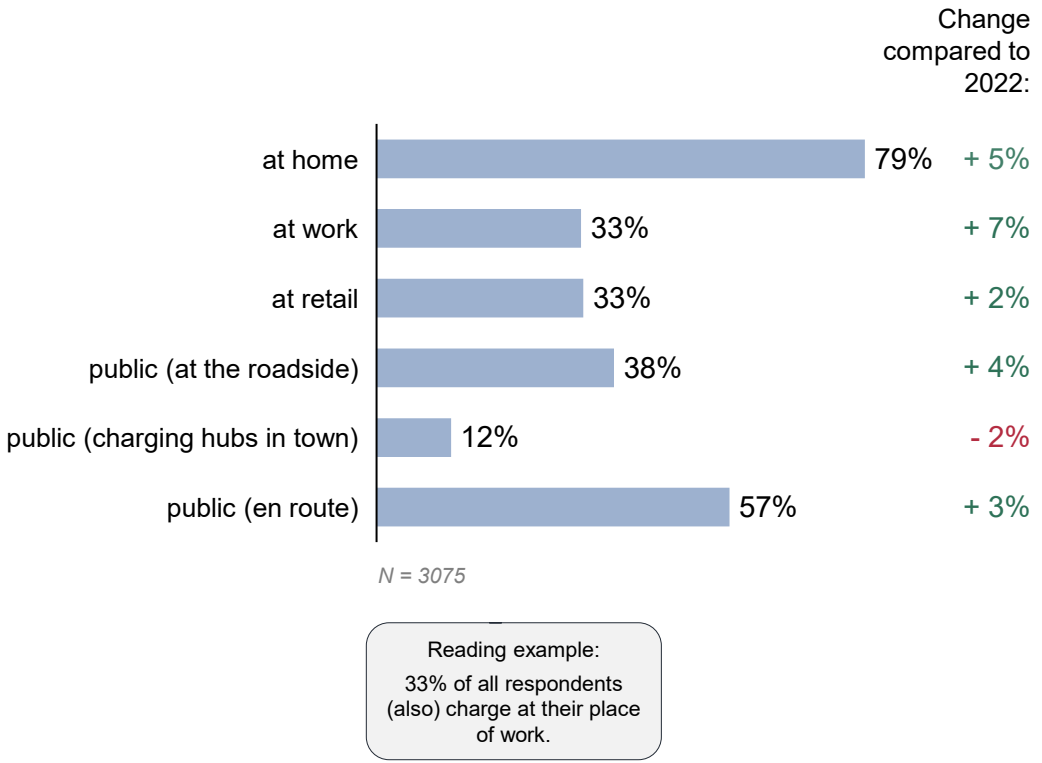
A good three quarters of those surveyed can charge at home and a third have a charging option at their employer.

If the data is analysed according to EV drivers who only use one charging option, the following data is obtained:

- 14% charge exclusively at home.
- 1% charge exclusively at work.
- 13% charge exclusively at public.
- 1% charges exclusively at public fast chargers.

21% never charge at public.

"Where do you charge your [brand]?"
(multiple answers possible)



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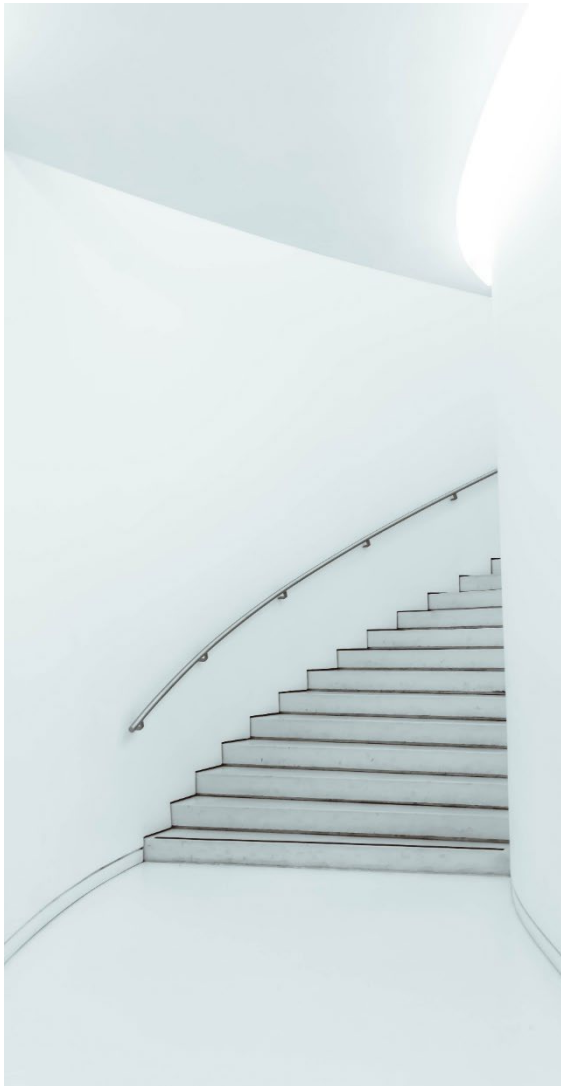
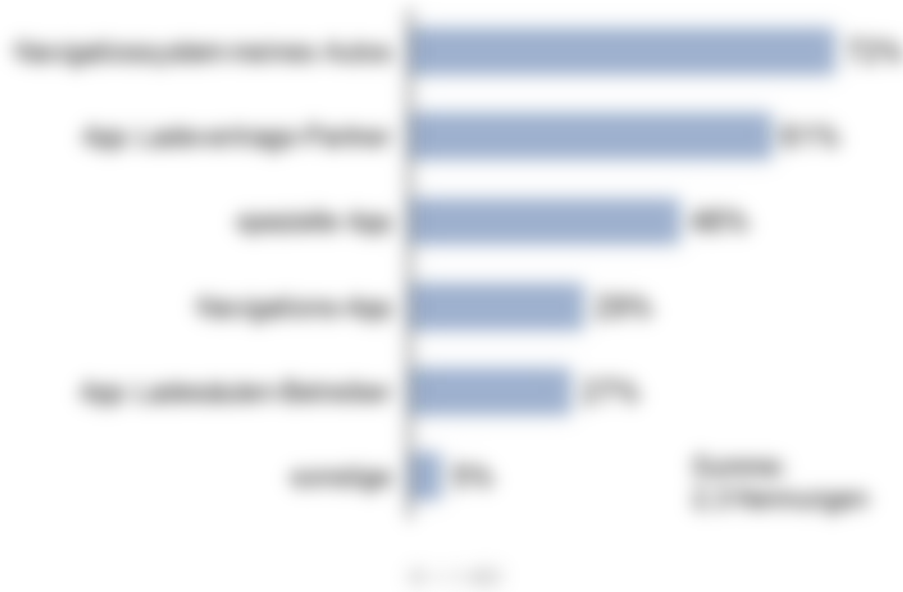


Charge planning

Search for charging stations: Systems

[illegible]

"What systems do you use to search for charging points?"



Search for charging stations: Filter options

"What information or filter options would you like to see for the charging point search in a charging app?"

(Multiple answers possible)

Route planning: Functions

"What features are important to you in a route planner?"

(Multiple answers possible)

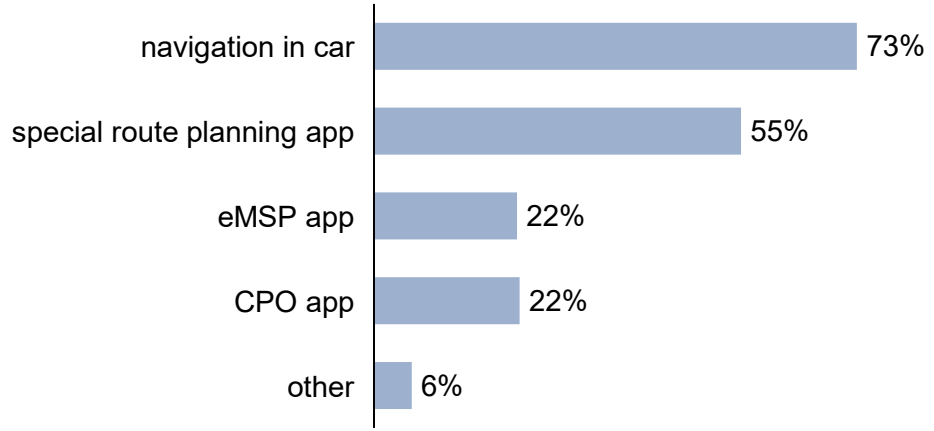
Route planning: Systems

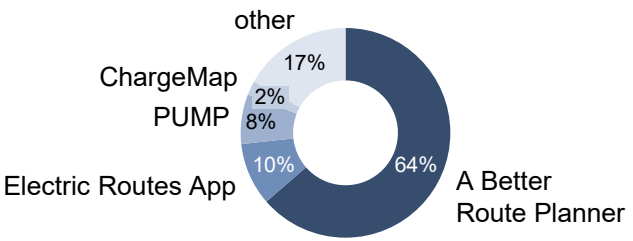
Sat Nav systems in first place, route planners becoming more important.

The vehicle's own navigation system remains the most important system for route planning with 73%.

Two out of three who use a route planner app use A Better Route Planner. Other providers still fall well behind.

"What systems do you use to plan your routes?"
(Multiple answers possible)





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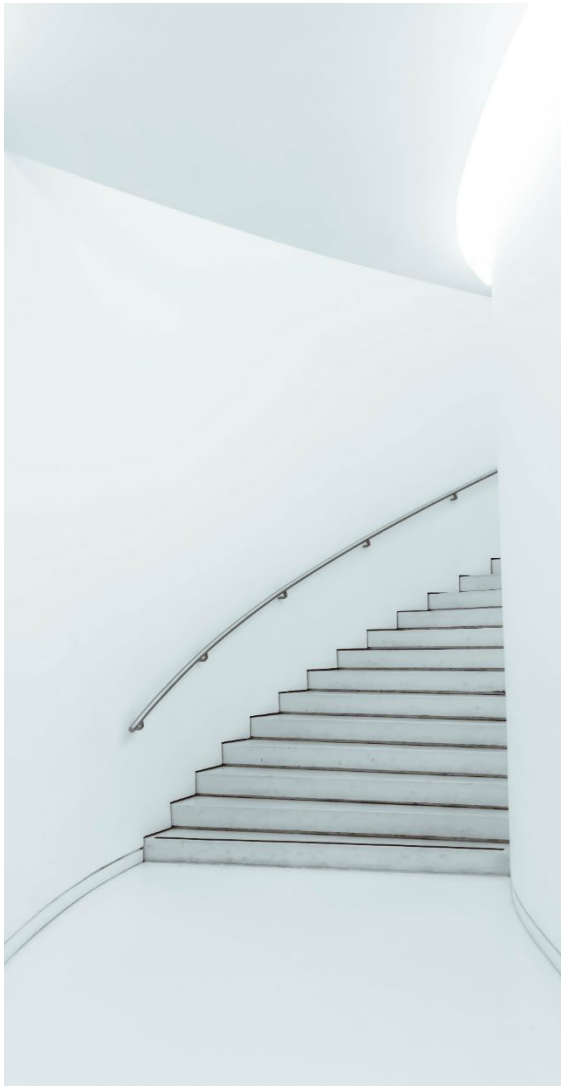


Use cases in comparison

Attractiveness of the charging locations

Many public charging locations with high scores in attractiveness.

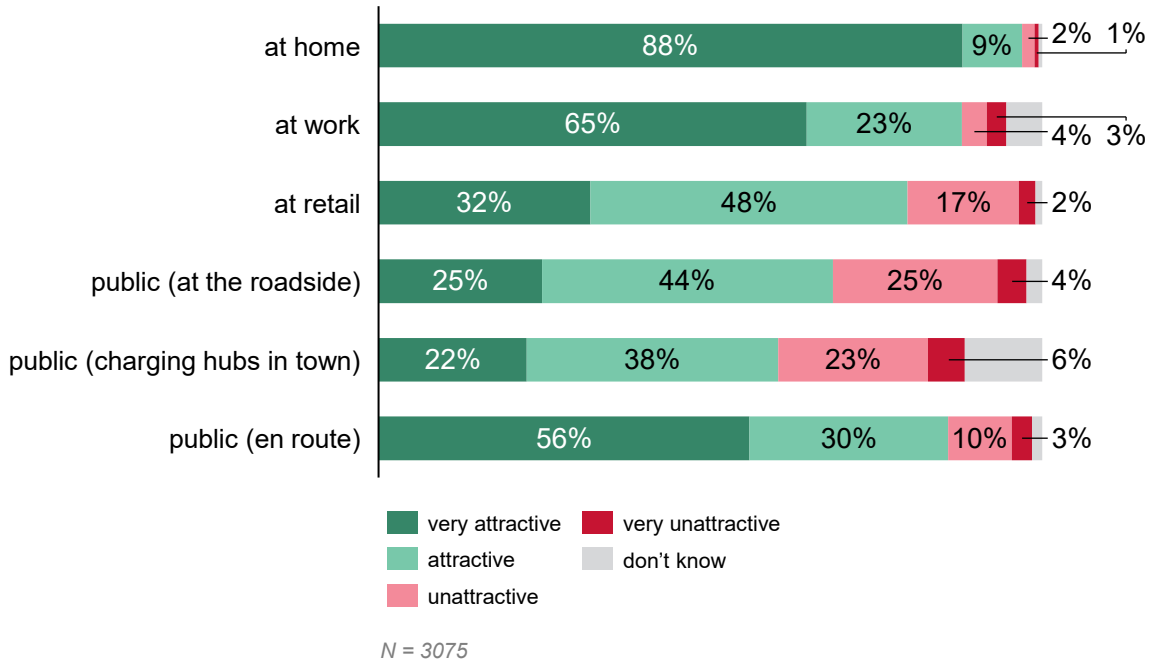
As expected, charging at home and at work is predominantly very attractive.

The public charging locations within the city also all have potential.

Inner-city charging hubs are rated surprisingly poorly.

Equally surprisingly, fast chargers on the motorway are predominantly rated as attractive.

"Regardless of whether you charge at the locations:
How attractive do you consider the following charging locations for EV drivers in general?"



N = 3075

Use cases in comparison

Relevance of the charging locations

Zuhause und Arbeitsort die häufigsten zentralen Ladeorte.

Die Rolle der Ladeorte für die Befragten spiegelt die überhaupt genutzten Ladeorte und die geladenen Energiemengen.

Öffentliche Ladeorte innerorts stellen für immerhin 10 bis 22% zentrale Ladeorte dar. Auch viele andere nutzen sie als gute Gelegenheit zum Nachladen.

Selbst Schnelllader an der Autobahn sind für 13% zentrale Ladeorte.

respective charging location = used:

"What role do charging locations play in your charging behaviour?"

Use cases in comparison

Attractiveness of the charging locations

Alle Ladeorte fallen durch eine hohe Konsistenz der Bewertungen auf. Arbeitgeber, Reisende und Innenstädte mit Verfügbarkeitsproblemen, innerstädtisch öffentliche Lader mit mehreren Herausforderungen, MPCs unterwegs mit hohen Preisen.

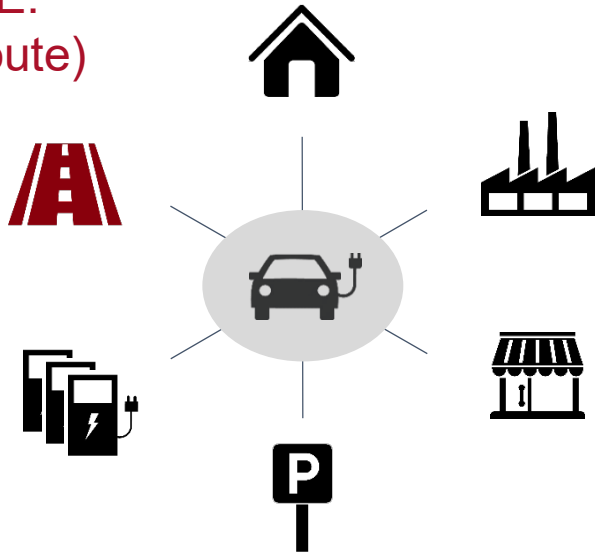
respective charging location = used:

"Which statements do you agree with regarding charging at [charging location]?"

Use cases in comparison

USE-CASE Deep-Dives

USE-CASE:
Public (en route)



USE-CASE: Charging on route (by sub-target groups)

Laden unterwegs attraktiv, von Vielen genutzt, vor allem wenn es sein muss. Hohe Relevanz für Dienstwagen.

USE-CASE: Charging on route (by sub-target groups)

eMobilisten mit regionalen Präferenzen laden weniger unterwegs

Use cases in comparison

USE-CASE: Charging on route (by sub-target groups)

eMobilisten vom Land und Männer fahren häufiger längere Strecken und laden deshalb häufiger unterwegs.

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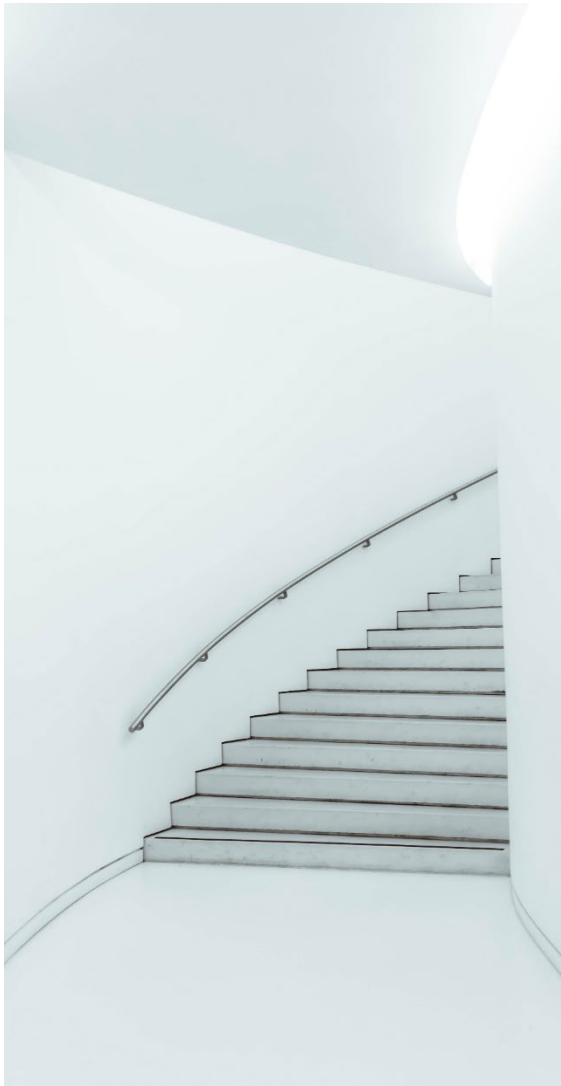

Expansion requirements

Occupancy of charging locations

Customer parking spaces and other inner-city charging locations frequently occupied

Apart from the charging option at home, the utilisation of all charging locations is viewed critically.

For many, public charging locations in the city centre are not a reliable option. Especially in the AC area, the frequently long charging and parking times make things even more difficult.

respective charging location = used:

"In your experience, how often are all charging points at a planned charging location occupied?"

Expansion requirements

Need for action: Charging on route

"What can the operators of charging hubs (e.g. IONITY, Fastned) on motorways do to improve your "charging experience"?"

(Multiple answers possible)

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