

Excerpt

Public Charging Study 2022



Data instead of opinions: (Semi-)public charging offers from the user's perspective.

Public Charging Study 2022

Initial situation



As of August 2022, the share of fully battery-electric vehicles in Germany was 14% of 2022 registrations. As the availability of vehicles increases, this share will continue to grow rapidly and cause great pressure on the public charging infrastructure.

In order to develop and set up the right charging offers, the providers in the market need to know the charging behaviour and the wishes of the users.

Working with the study (1)

Manufacturers and operators of charging infrastructure

The study shows manufacturers and operators of charging technology how users charge and what problems they have in doing so. Together with the above-mentioned expansion needs, this helps in the development of new products, the prioritisation of features and the definition of customer benefit criteria.

eMSPs

The survey reveals the problems and potentials for service providers to retain customers in their own offerings. In addition, the analysis helps in the development of pricing models for the future.

Municipalities and funding bodies

The experiences of today's e-car drivers show municipalities, neighbourhood developers and funding bodies which services need to be developed and installed with particular urgency.



Working with the study (2)

Retail and hotel industry

For providers of semi-public charging infrastructure, the results clearly show the enormous potential for customer loyalty and increased sales that charging offers and where the need for action lies.

Employer

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

Other service providers

The study shows the service needs of e-car drivers during public charging in and out of town.



Public Charging Study 2022

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 blocked and fixed for the long term. 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 vehicles, suppliers can score with the right offers and gain market share (example Tesla).

Diffusion

Manufacturers who meet or exceed customer expectations of e-vehicles support the successful ramp-up of e-mobility.



Public Charging Study 2022

Target group

Sample:

- Owners of EVs
- Criterion for participation: Respondents charge (semi-)public
- Total sample: N = 1,842
 - of which:
 - Public charging N = 1,329
 - Retail charging N = 814
 - Charging at work N = 677

Survey:

- Survey: online
- Countries: DACH (92% GER)
- Recruitment: UScale Panel & Social Media
- Interview duration: 15 - 20 min
- Field phase: June - Aug 2022



Content

(1) Management summary

▶ (2) Housing, driving and charging behaviour of EV drivers

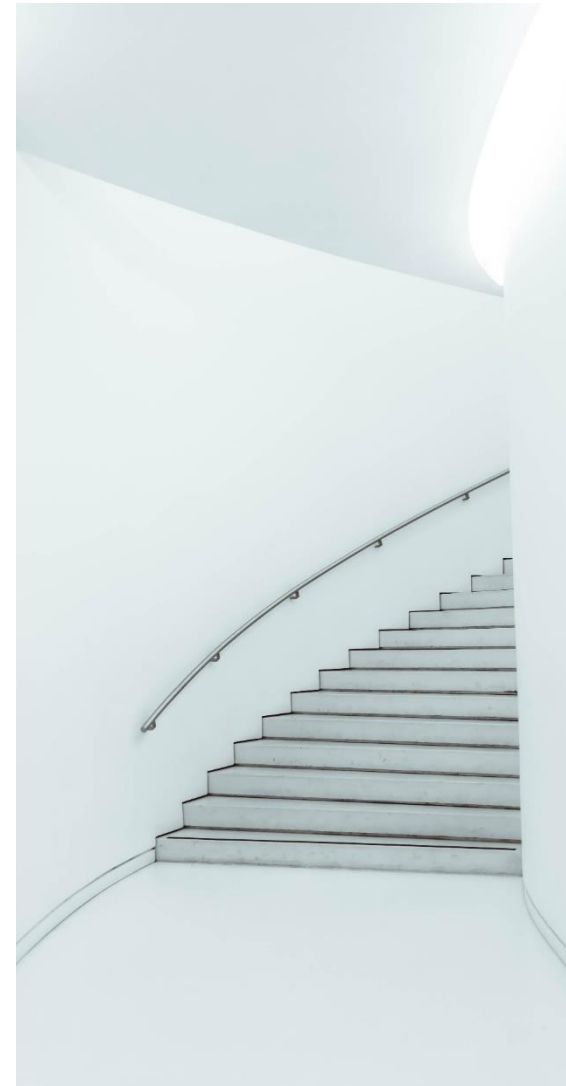
1. Demography
2. Housing
3. Driving
4. Worries and motivation
5. Charging locations and habits

(3) Charging in public

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(5) Charging at work



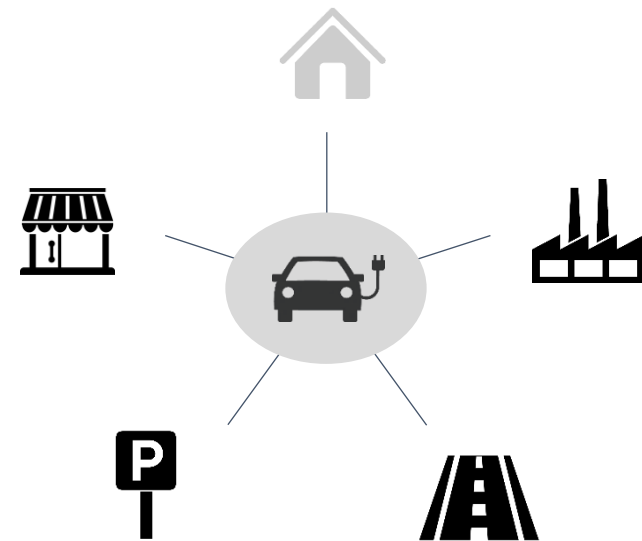
The EV driver

Preliminary remark

Who are the e-car drivers?

In this chapter, the **charging behaviour of all respondents** is presented, regardless of charging behaviour. The data is based on 2,682 responses. A separate analysis by charging location is possible via the UScale dashboard for the study.

From chapter (3) onwards, **only the data of respondents who at least occasionally charge (semi-)publicly or at work** are shown. The data is based on 1,842 responses. During data collection, filters were used to ensure that only they answered the questions.



Chapter 2: all EV drivers.

from Chapter 3: only EV drivers who charge in public, at retail or at work

Demography

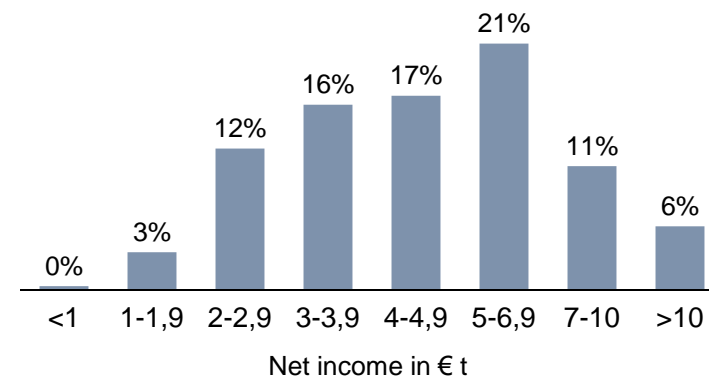
Income

EV drivers with higher incomes than combustion car drivers.

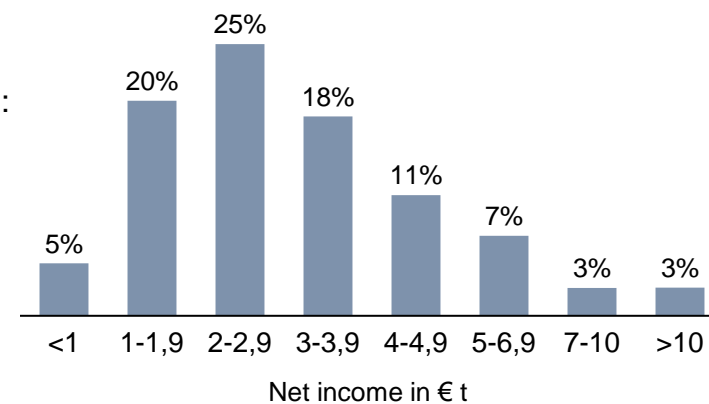
"What is your monthly household net income?"

More than one third of EV drivers earn more than € 5,000 per month.

Among combustion car drivers, this share is only 13%.



combustion
drivers for
comparison*:



* Data collected in 2022 in a study among drivers of internal combustion vehicles in Germany.

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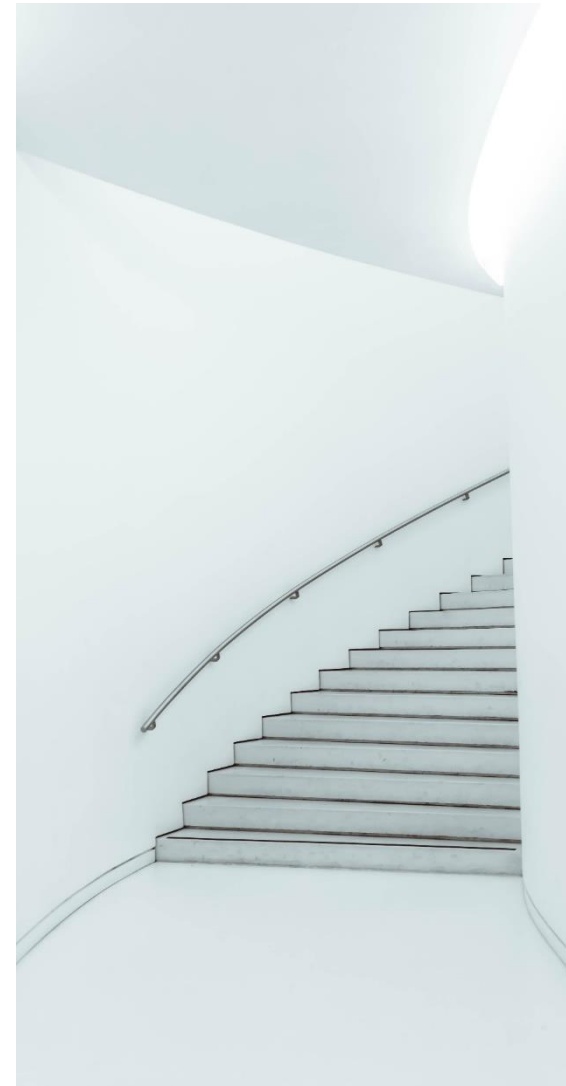
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Worries and motivation

"Topics" before purchase decision

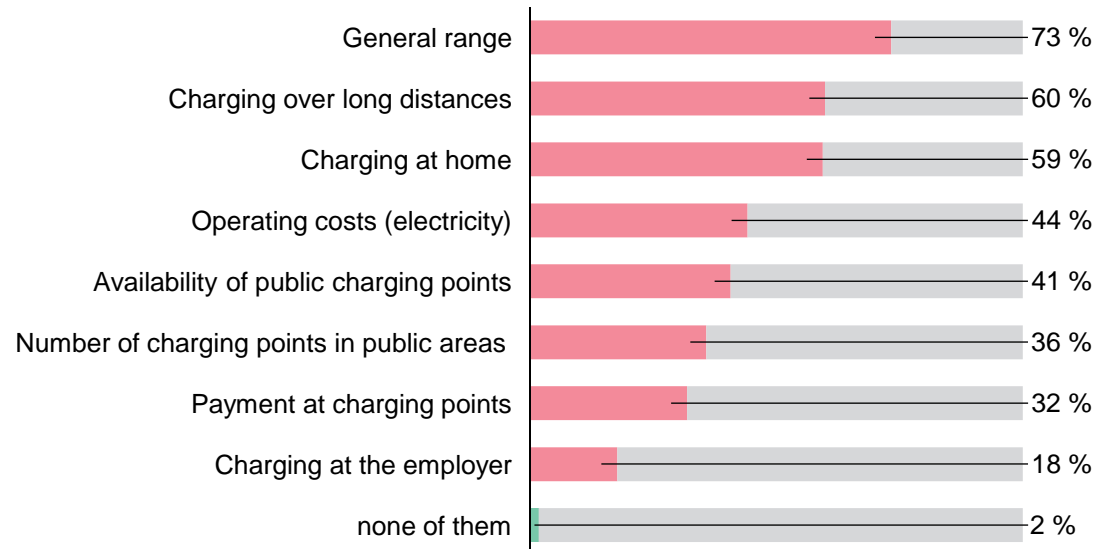
Range as the biggest pre-purchase concern.

The limited range was also a central issue for current EV drivers before they made their purchase decision. In addition, there were cost aspects, the right charging solution for the home and possible problems with charging in public spaces.

"If you remember when you were faced with the decision to buy an EV:

What issues were you particularly concerned about at the time?"

(Multiple answers possible)



Worries and motivation

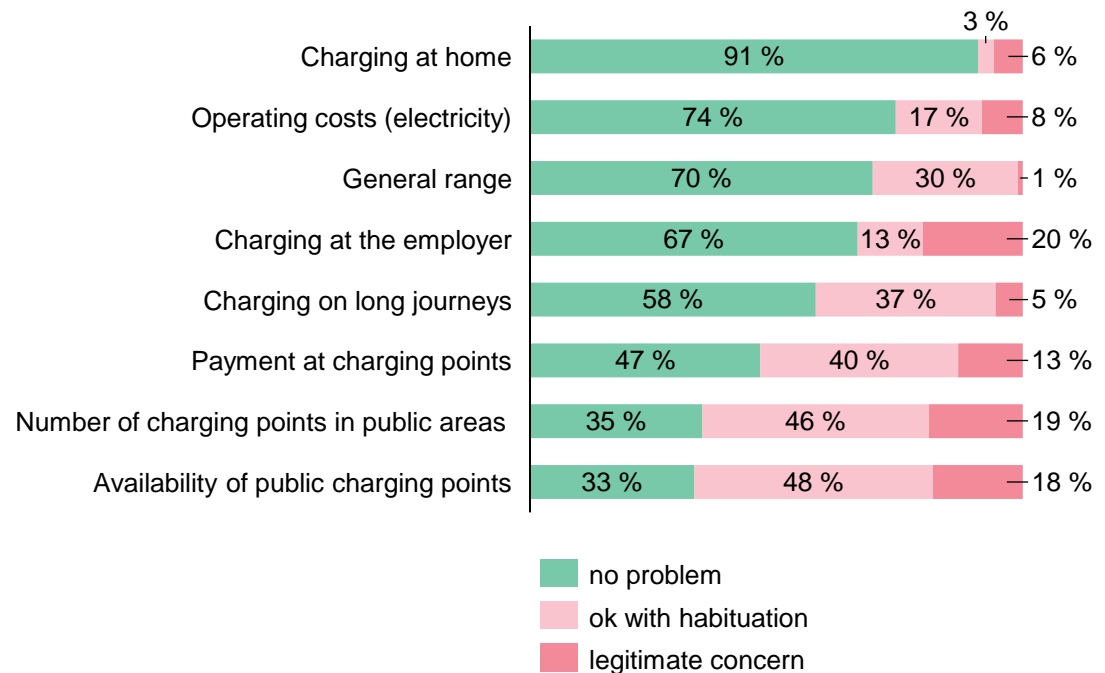
"Topics" from today's perspective

Acquisition and availability of public infrastructure as permanent problems.

From the point of view of experienced EV drivers, charging at home is no longer a problem (at the latest with a little familiarisation).

Charging in public spaces remains precarious. In addition, the purchase of the EV is difficult because of the current long delivery times.

"And how do you assess the situation today?"



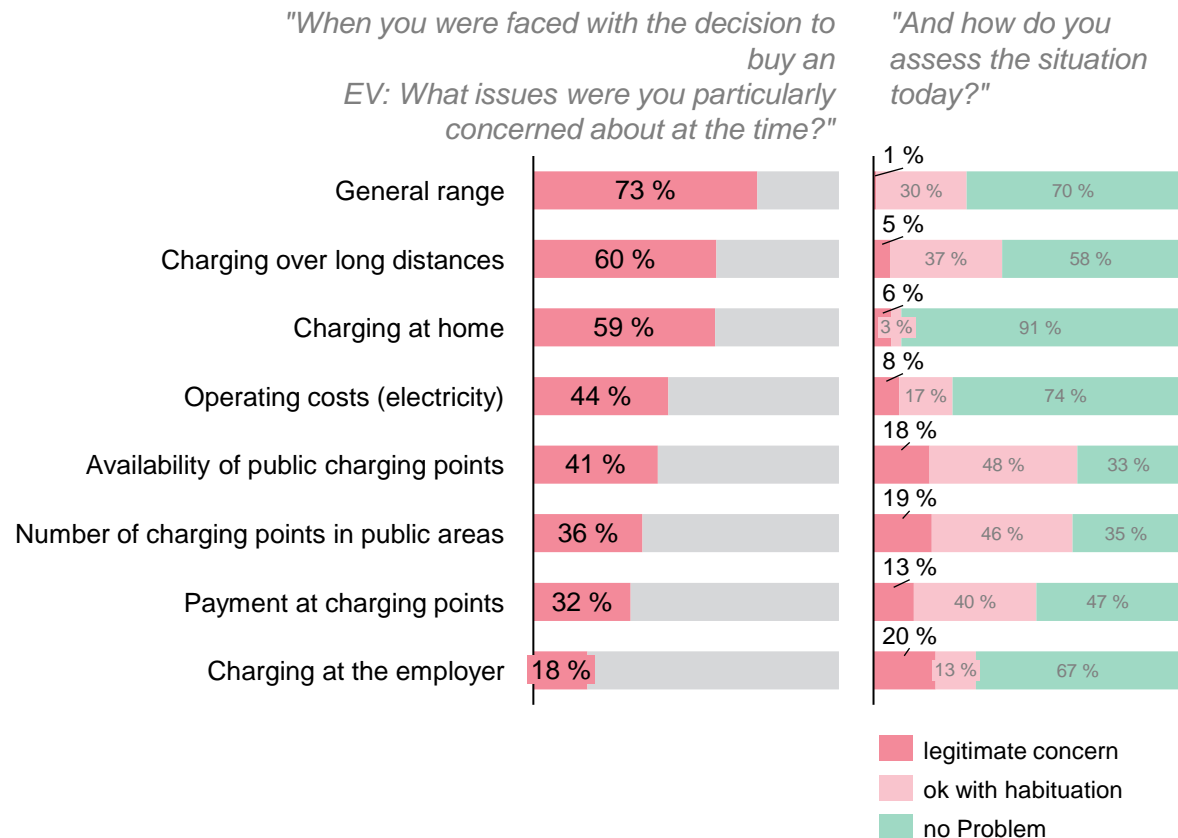
Worries and motivation

"Topics" (before - after)

No range anxiety, but "charging anxiety".

The biggest concern, the fear of running out of range, is greatly relativised with habituation.

Charging at home proves to be completely problem-free for the vast majority, while the availability of public charging stations after two years of electric driving proves to be a bigger problem than initially assumed.



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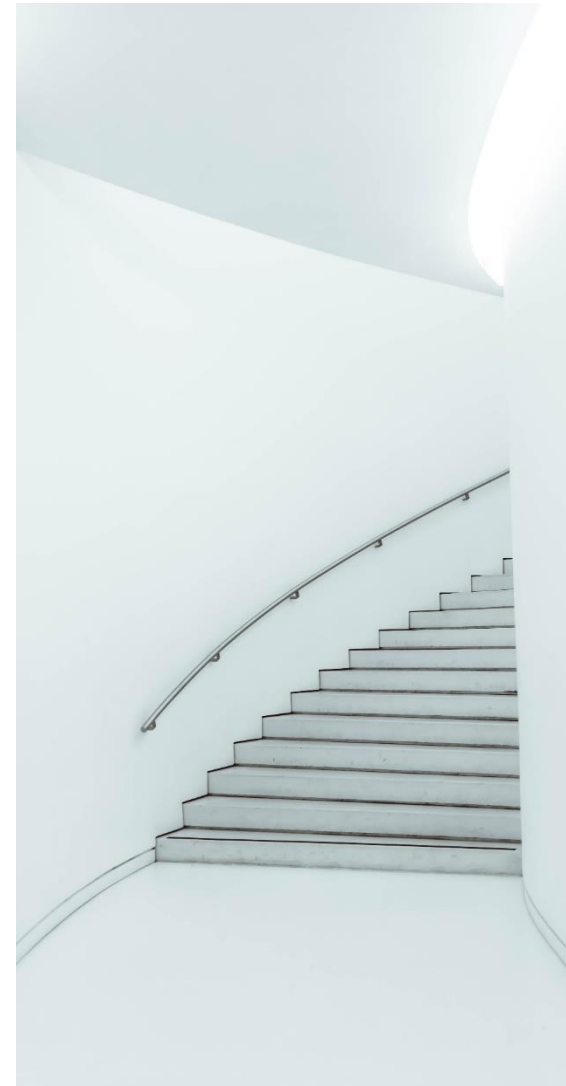
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Charging locations and habits

Charging locations

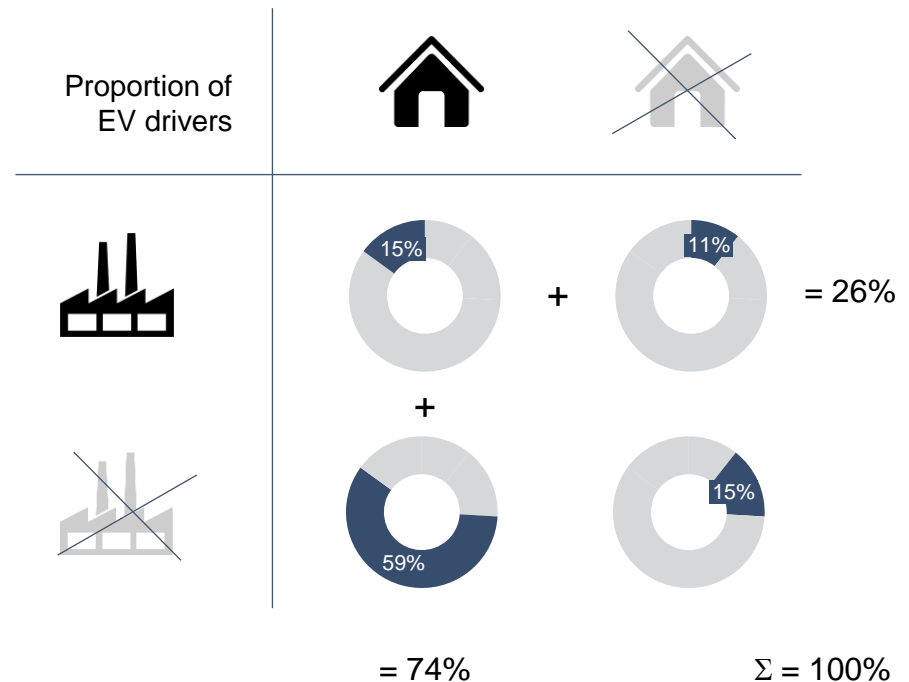
74% with a charging option at home.

Almost three quarters of the respondents have a charging option at home. Of these, 15% have an additional charging facility at their employer's premises.

26% have an option to charge at the employer. This percentage has risen slightly in recent years.

15% of EV drivers are completely dependent on the public charging infrastructure.

Proportion of respondents with charging facilities at home and / or at the employer:



Charging locations and habits

Charging locations

The importance of (semi-)public charging services is increasing.

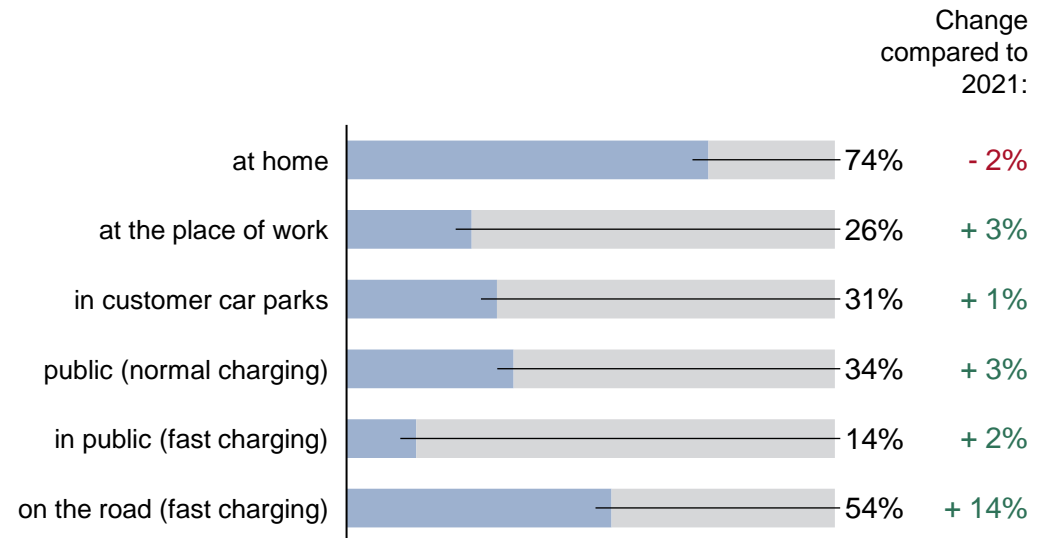
Three quarters of the respondents can charge at home and a quarter have a charging option at their employer.

The respondents indicate an average of 2.3 charging locations. If the data is analysed according to EV drivers who only use one charging point, the following data emerges:

- 20% charge exclusively at home.
- 2% charge exclusively with the employer.
- 15% invite the public only.
- 1% charges only publicly at fast chargers.

27% never charge publicly.

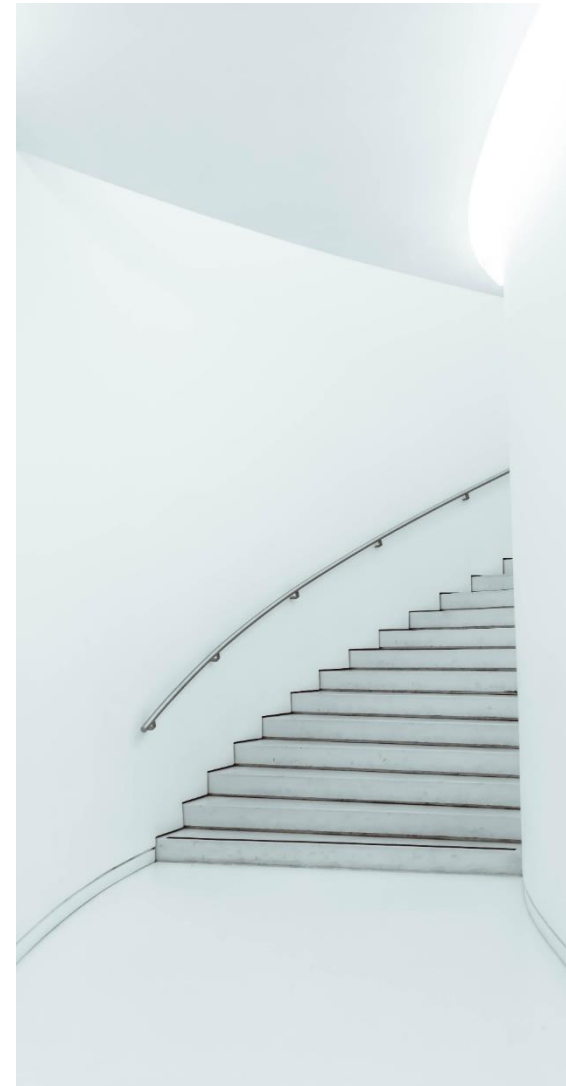
"Where do you charge your [brand]?"
(Multiple answers possible)



Reading example:
26% of all respondents
(also) charge at their place
of work.

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Charging planning / charging decision

Criteria charging on the road (@long trips)

"Imagine you are driving a long distance and have to charge on the way.

What criteria do you use to decide where to charge?"

(Multiple answers possible)

As far as possible on the road, only available and high charging power

On the road, I'll always want to reach the destination quickly. I'll therefore ignore how charging stations are conveniently located on the road and look for high charging capacity

From only routes in the area along the important roads, I'll look for a fast way

Among the others, the respondents would like to use mobile-friendly charging options

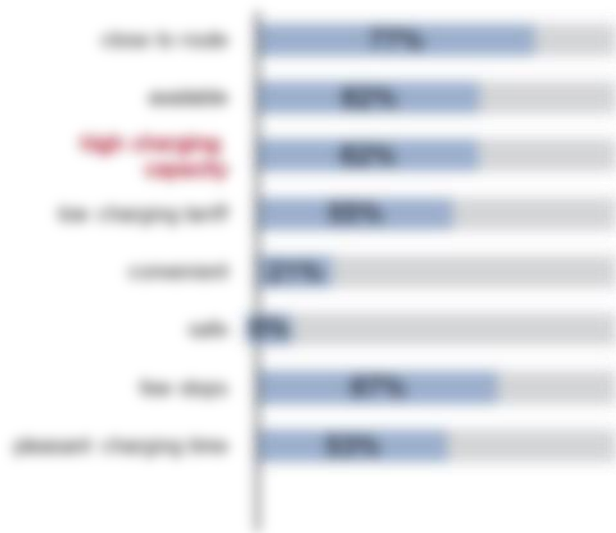


Charging planning / charging decision

Summary criteria for choice of charging point

The biggest differences are in the charging power. On the road, the charging power plays an important role; at the destination or place of residence, it is of little importance.

Criteria charging @long trips



Criteria charging @destination

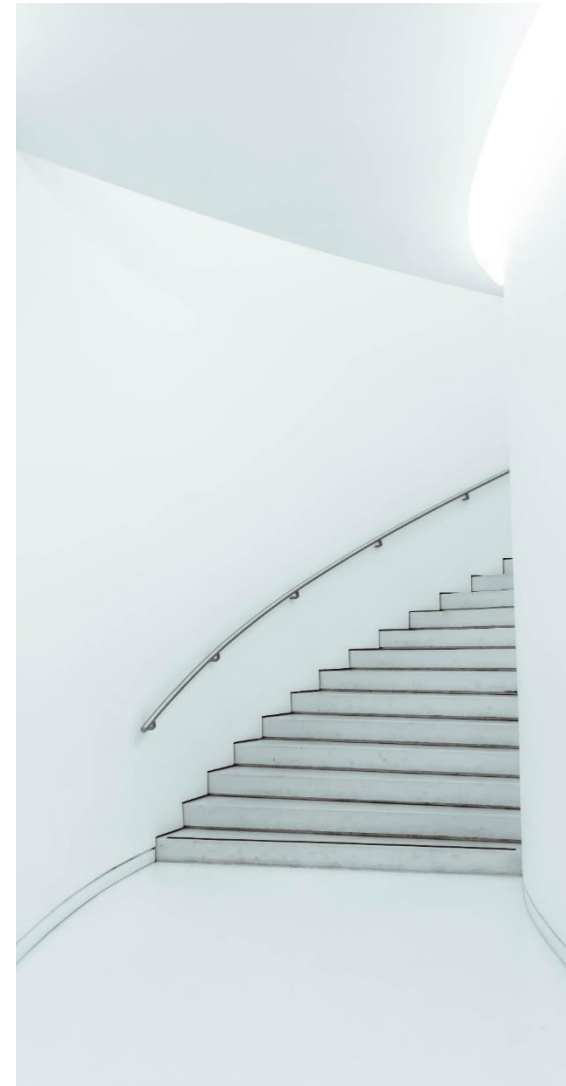


Criteria charging @home



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Charging problems and satisfaction

Charging problems solved

Changing the charging station almost always helps

The most common approach to solving the problem is to change the charging point. If that is possible, it is recommended to change the service provider.

It is also effective to call the hotline. The hotline of the charging station is the first point of call. The service provider also follows a procedure. The hotline of the service manufacturer is only very rarely contacted.

At least one problem: yes:
"How do you usually solve the
problems with public charging?"
(Multiple answers possible)



Satisfaction

"All in all:

How satisfied are you with charging at publicly accessible charging stations regarding...? "



Charging problems and satisfaction

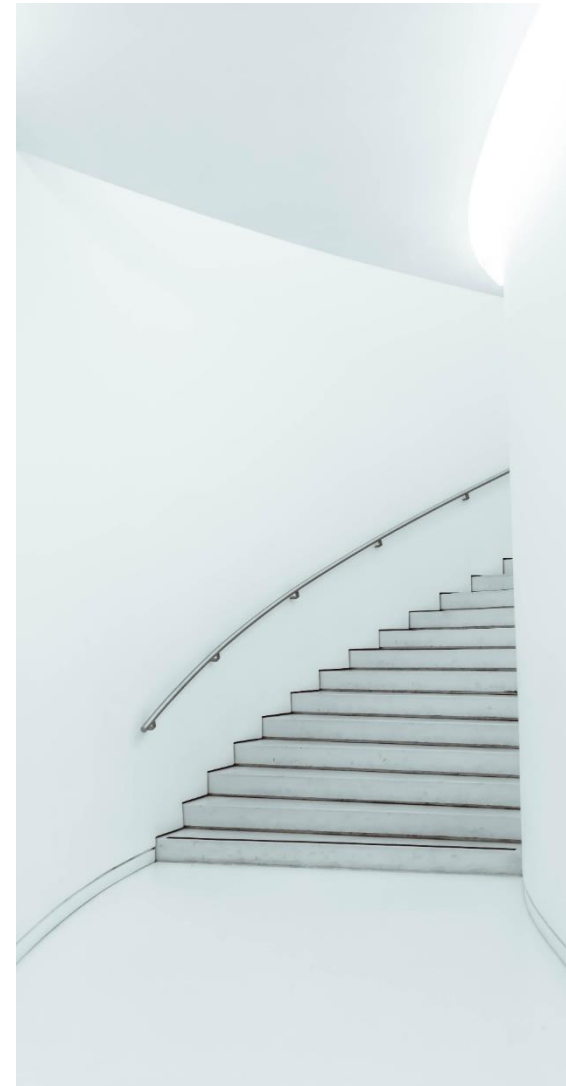
Satisfaction (change)

*"What is your impression?
How has the situation developed since
you started driving electrically....?"*



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Expansion requirements for public charging infrastructure

Needs for improvement Charging point

Particular need for action on location and availability

In the charging point itself the respondents see a particular need for action in terms of technical availability and comfort-related aspects such as a roof

Among the other measures, an increase in the number of charging points is repeatedly selected

"And now to the charging point itself:
Where do you see a particular need for action here?"
(max. 4 answers possible)



Expansion requirements for public charging infrastructure

Recommendations

Clear need for action by manufacturers and operators

The respondents would like to see better quality control, regulations and standards that are easier to read in the real world

They would like to see more charging stations, better equipment and a single approach to charging points, getting from the operators. The table also included the fact that the charging

The desire to supply technical equipment is a common theme

to the
manufacturers of
charging stations:
(N = 344)

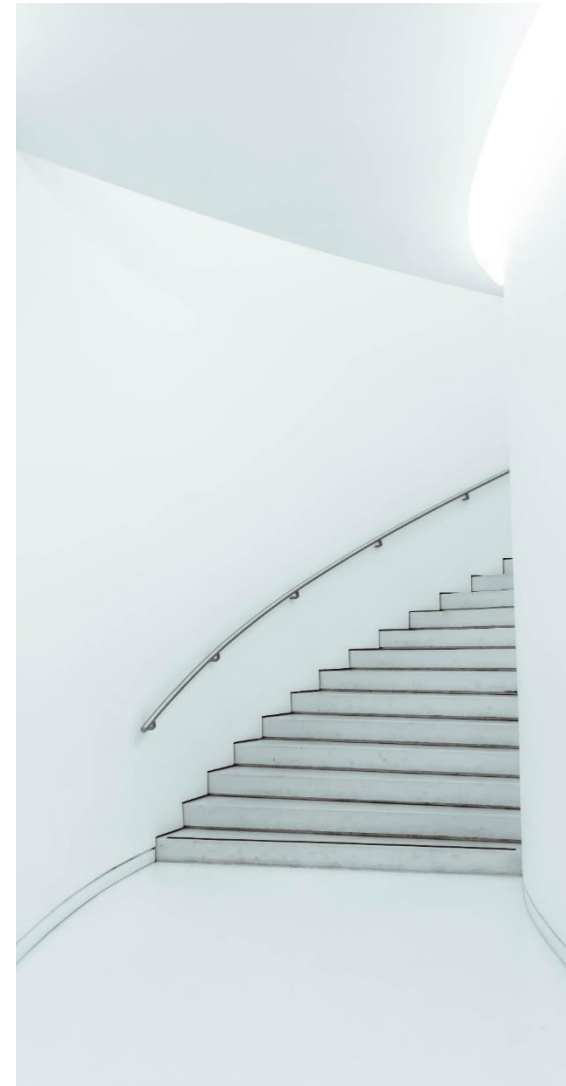
to the operators
of charging
stations:
(N = 550)

"Do you have any recommendations for the providers of public charging points?"



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Retail charging Satisfaction

How satisfied are you with the retail charging?

The speed of charging is fast enough

The availability of charging stations, especially in shopping centres and supermarkets, is sufficient

"How satisfied are you with the charging in retail regarding...?"



Retail charging

Variable tariffs in retail

What encouragement for making charging with charging

The idea of the independent
 retail charging stations for
 cars with variable tariffs and rates
 depending on the time of the
 day is very interesting

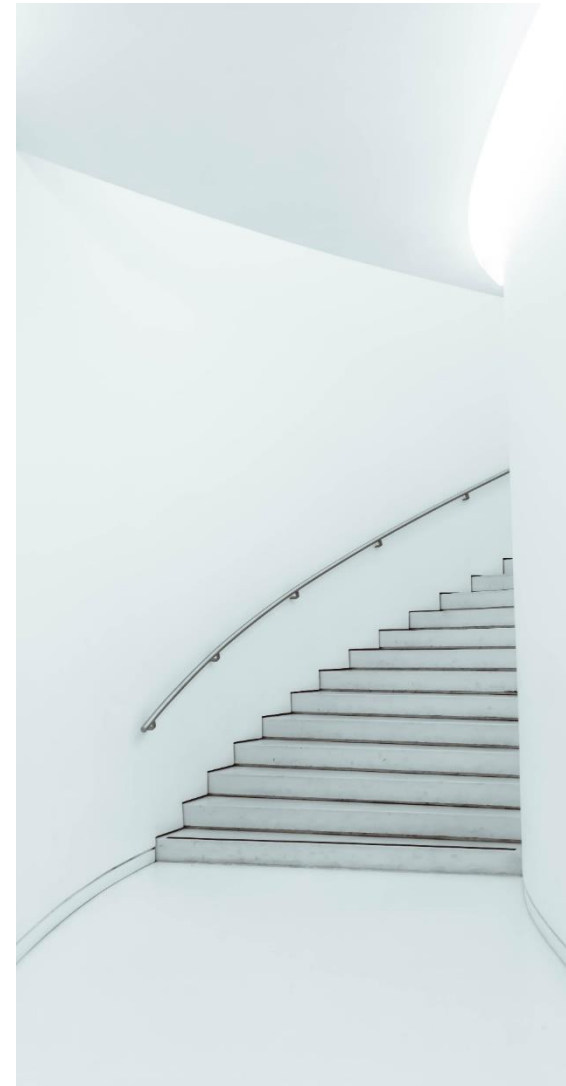
Linking the charging process with
 the customer's daily life with
 variable tariffs and rates
 that are more than just

"How interesting do you find the following retail ideas?"



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Charging at work

Satisfaction charging offer

The employer's charging offer is convincing

Responsibility of the respondents are very satisfied with the employer's charging offer

Respondents are very satisfied with the employer's charging offer and help in the event of problems

"How satisfied are you with the charging offer at your employer?"



Charging at work

Costs

Responsible employees

For the benefit of the organization, the employee provides charging power to the organization for the use of energy.

The employee pays for the electricity used.

"Who pays for the electricity, when you charge at your employer's?"



About UScale

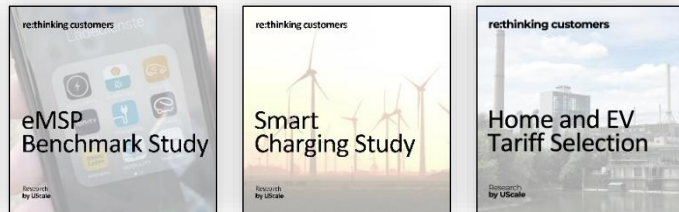
- UScale advises car manufacturers, energy suppliers and service providers on the customer-oriented design of offers and the development of KPI systems for customer perception.
- UScale's work is based on a development framework for product-market fit for digital and innovative products and customer insights studies on all touchpoints of the e-mobile customer journey.



- UScale is the only provider of a panel specialised in eMobility with over 7,000 panellists in German-speaking countries.
- UScale makes the customer perspective tangible for managers, engineers and IT'ers.
- UScale has extensive industry knowledge of the eMobility ecosystem.
- UScale combines extensive experience with the challenges of corporates with the agility of a start-up.

UScale focus studies

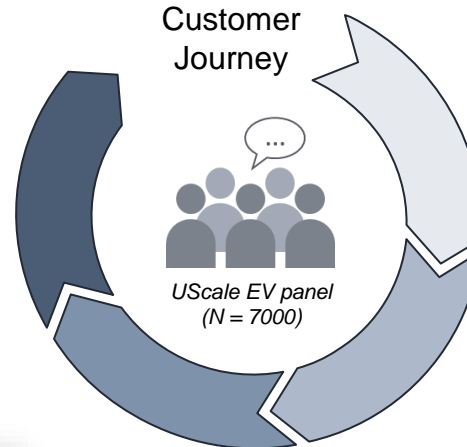
Business models



Charging



Customer Journey



Orientation phase



Purchase phase



Vehicle use phase



* All studies in the three DACH markets



plus other countries if applicable



SCALE YOUR USER
SCALE YOUR BUSINESS



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