

*Excerpt*

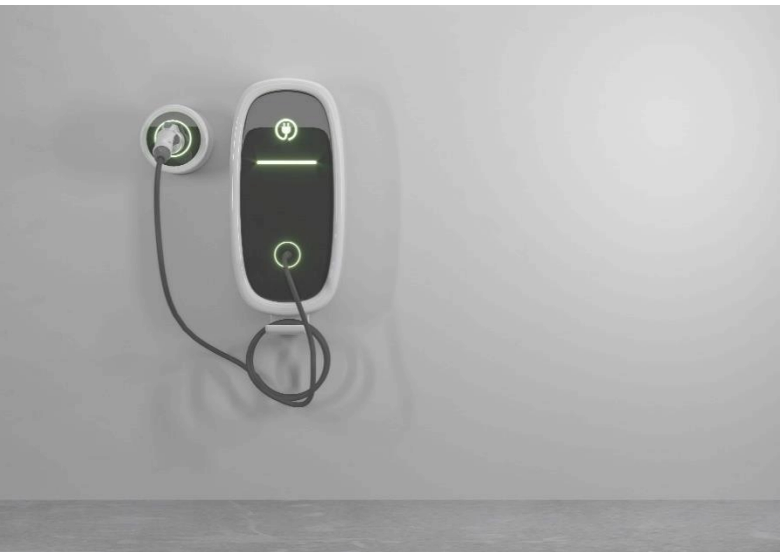
# Private Charging Study 2022



Data instead of opinions: User behaviour and service from the customer's point of view

## Private Charging Study 2022

# Initial situation



eMobility offers enormous opportunities for established and new market participants. For private charging, there is a lot of potential for providers to offer new products and services beyond a wallbox.

On the part of the users, several UScale studies show an increasing interest in bidirectional charging, which makes the challenges in connection with the selection of the suitable charging solution at home even more difficult.

The providers who best understand the expectations, wishes and pain points of e-car drivers and offer convincing solutions will benefit most from the ramp-up of e-mobility.

## Working with the study

### **Manufacturers and resellers of charging infrastructure**

The study shows developers, manufacturers and sales partners of private charging technology how home chargers use their private infrastructure and what their experiences are.

The data show providers...

- which charging habits products, concepts and services must be designed for,
- which features home chargers use and how, and which features they would like to see, and
- which problems need to be solved in a prioritised manner.

### **Neighbourhood and project developers, energy suppliers**

The wishes and experiences of current users show neighbourhood developers and energy providers which services need to be developed and installed with particular urgency.



## Private Charging Study 2022

# Added value of the study

### Time

Comprehensive, quantitative and qualitative customer input saves time in the development of new products and services.

### Market share

Despite the current boom, the market for private charging infrastructure is under considerable pressure. With the right offers, providers can score points against the consolidation pressure and gain market share.

### Costs

Product concepts are blocked and fixed for the long term. Working with the *right* concepts early on saves considerable costs by avoiding bad investments.

### Diffusion

Manufacturers who meet or exceed customer expectations for charging infrastructure support the successful ramp-up of eMobility.



## Private Charging Study 2022

# Target group

### Sample

- Target group: Owners and e-car drivers with private charging infrastructure
- Total sample: N = 1,149
  - of it:
    - EFH: N = 941
    - MFA: N = 208

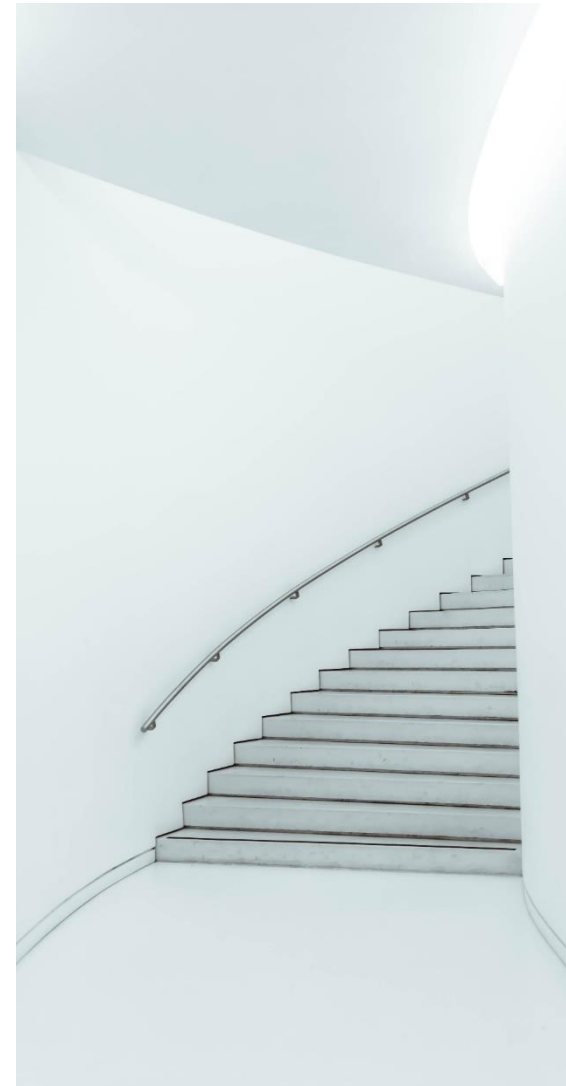
### Survey

- Survey: online
- Countries: German-speaking countries (DACH)
- Recruitment: Social Media
- Interview duration: 15 min
- Implementation: June 2021



# Content

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  - 4. Worries and motivation
  - 5. Charging locations and habits
- (3) Purchase process charging technology at home
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- (6) Charging power contracts



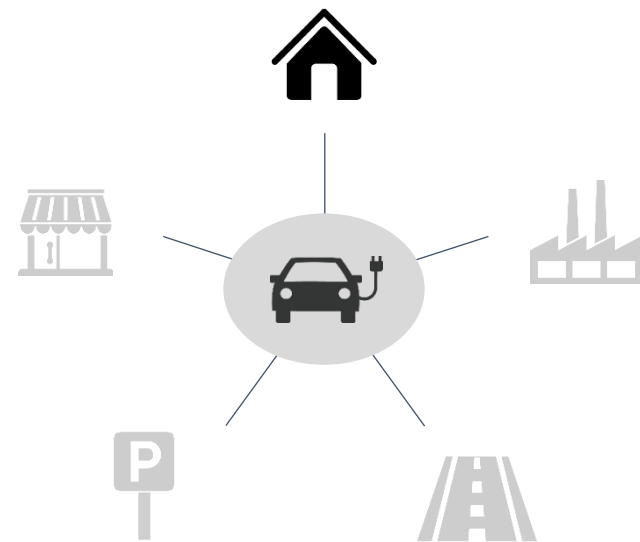
The e-car driver

## Preliminary remark

### Who are the e-car drivers?

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

**From chapter (3) onwards, only** the data from respondents who **charge at home** is shown. The data is based on 1,149 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  
charging at home

# Demography

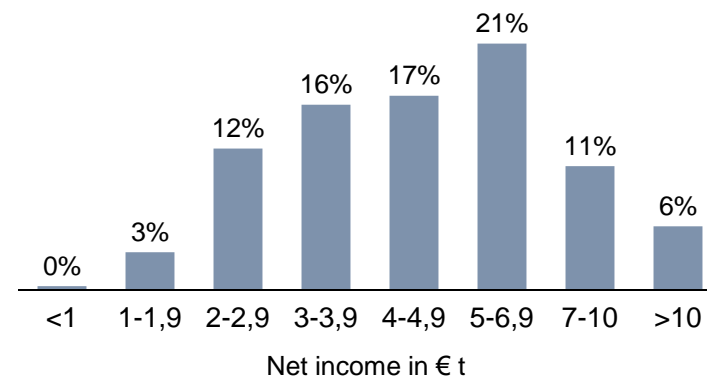
## Income

*e-car drivers with higher incomes than combustion car drivers.*

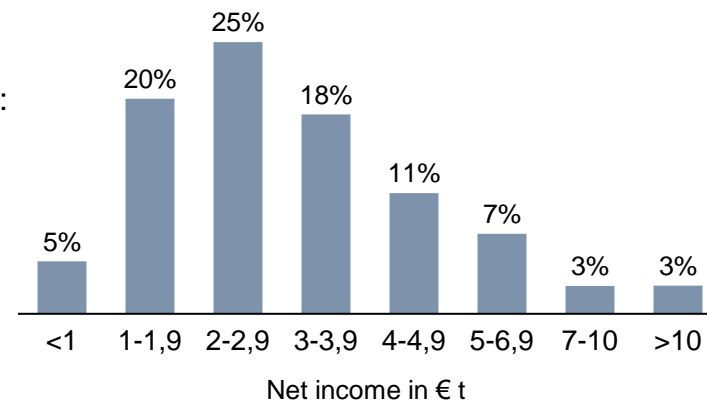
More than one third of e-car drivers earn more than € 5,000 per month.

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

*"What is your monthly household net income?"*



combustion drivers for comparison\*:

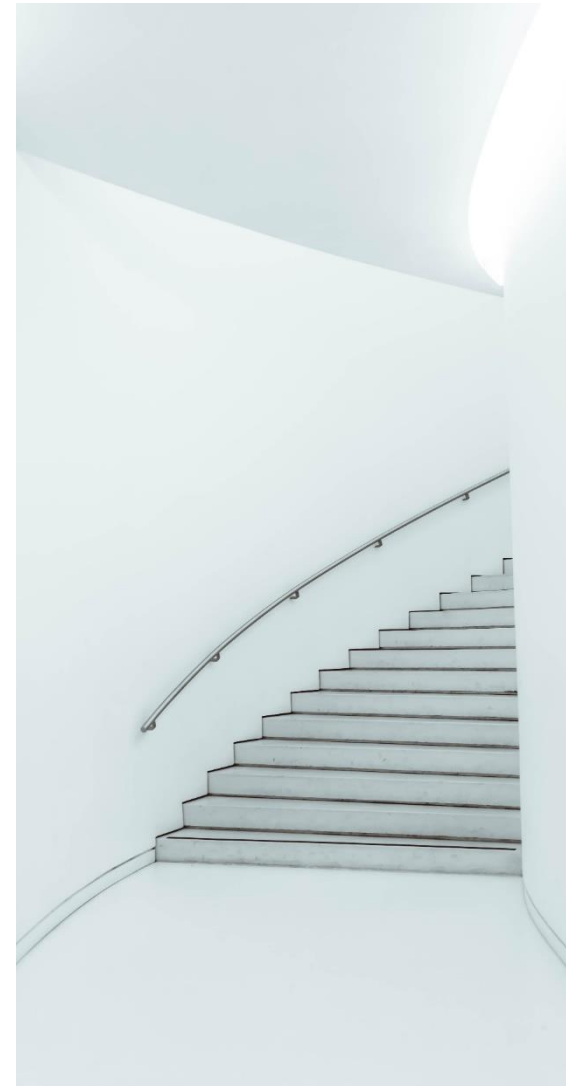


\* Data collected in 2022 in a study of Germany among drivers of internal combustion vehicles.



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## Worries and motivation

# "Topics" before purchase decision

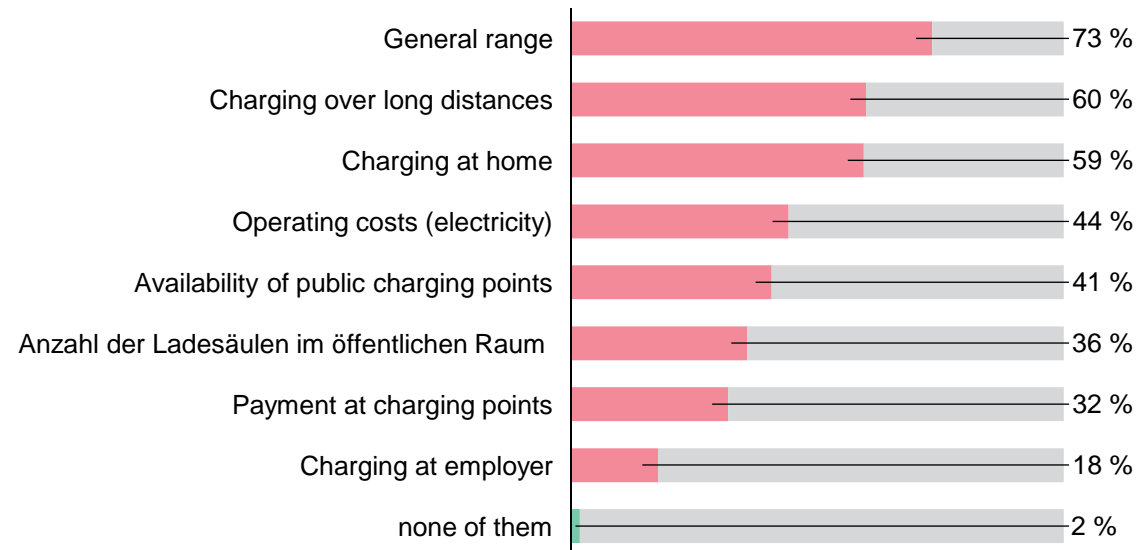
*Range as the biggest pre-purchase concern.*

The limited range was also a central issue for current e-car 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 e-car:*

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

*(Multiple answers possible)*



## Worries and motivation

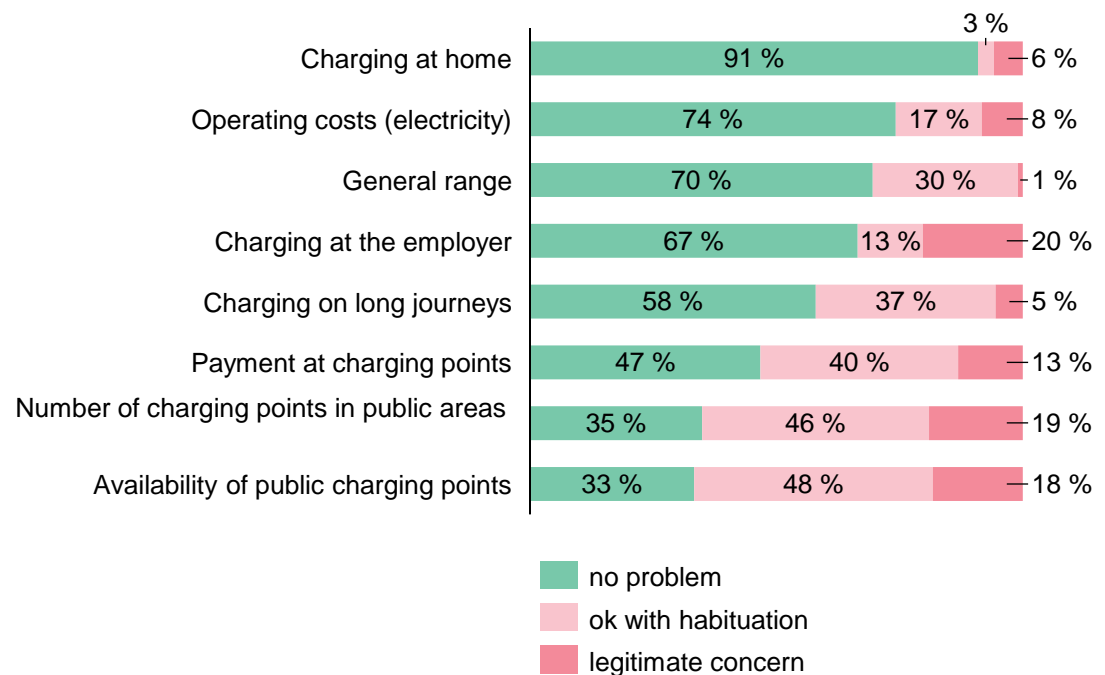
# "Topics" from today's perspective

*Acquisition and availability of public infrastructure as permanent problems.*

From the point of view of experienced e-car 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 e-car is difficult because of the current long delivery times.

*"And how do you assess the situation today?"*



## Worries and motivation

# "Topics" (before - after)

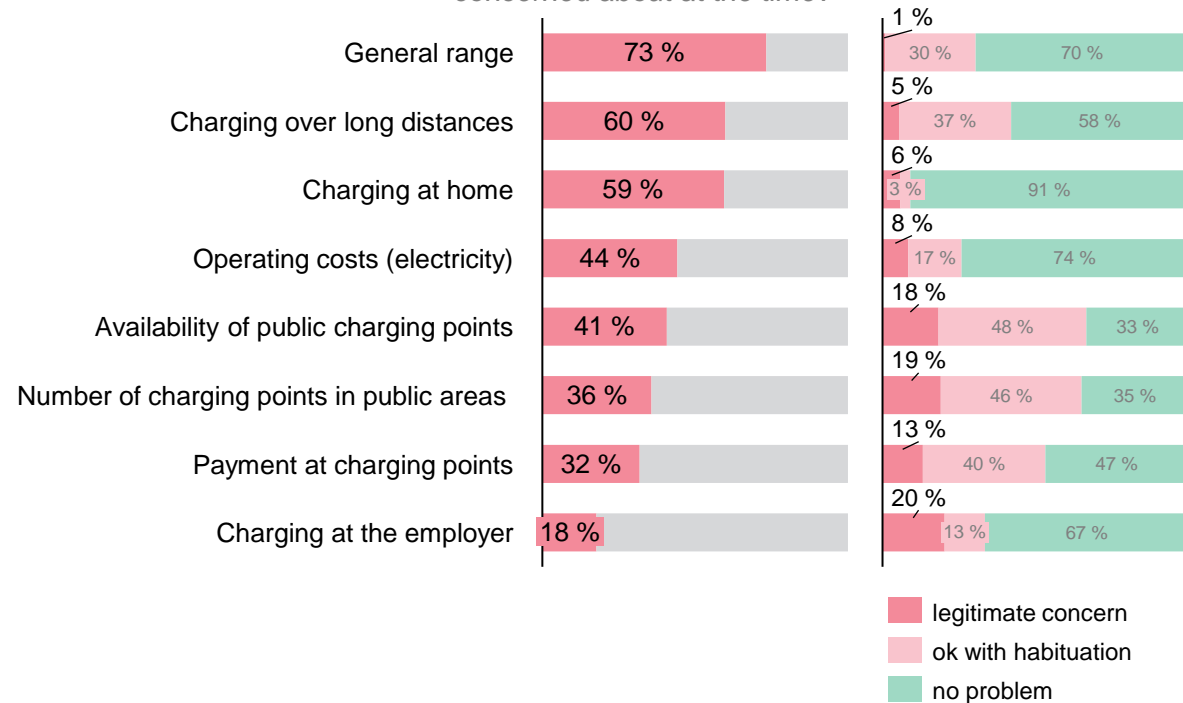
*No range anxiety, but "charging anxiety".*

The biggest concern, the fear of too short a 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.

*"When you were faced with the decision to buy an E-car: What issues were you particularly concerned about at the time?"*

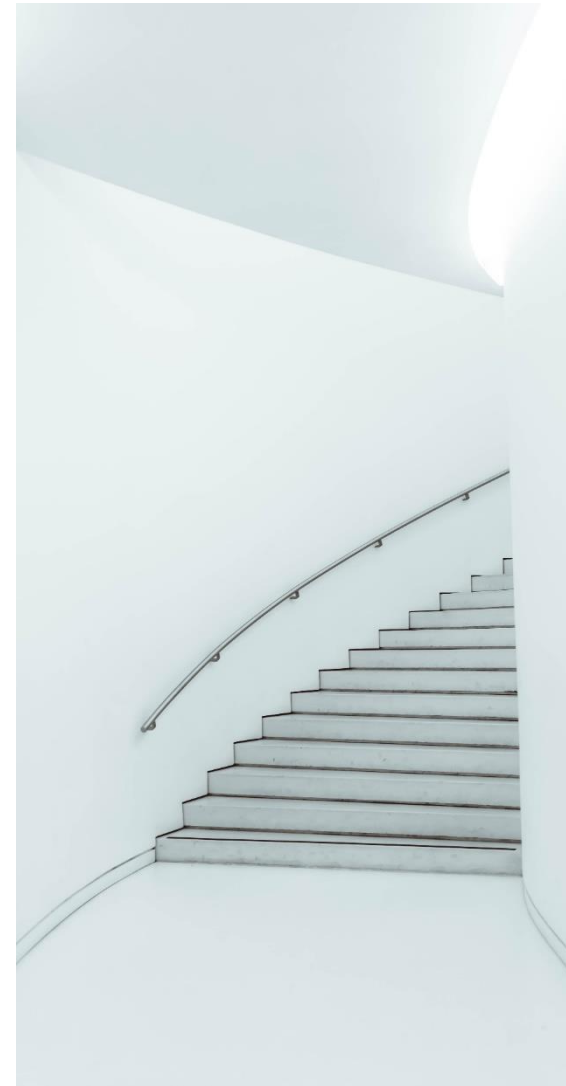
*"And how do you assess the situation today?"*



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## Charging locations and habits

# Charging locations

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

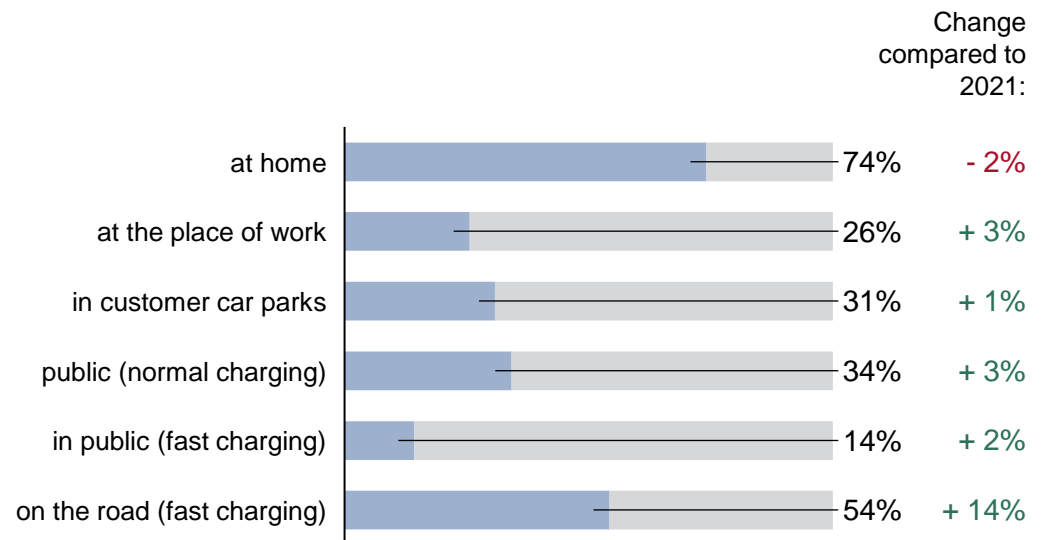
Three quarters of the respondents can charge at home and a quarter have a charging option at their employer.

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.

# Charging locations and habits

## Charging locations

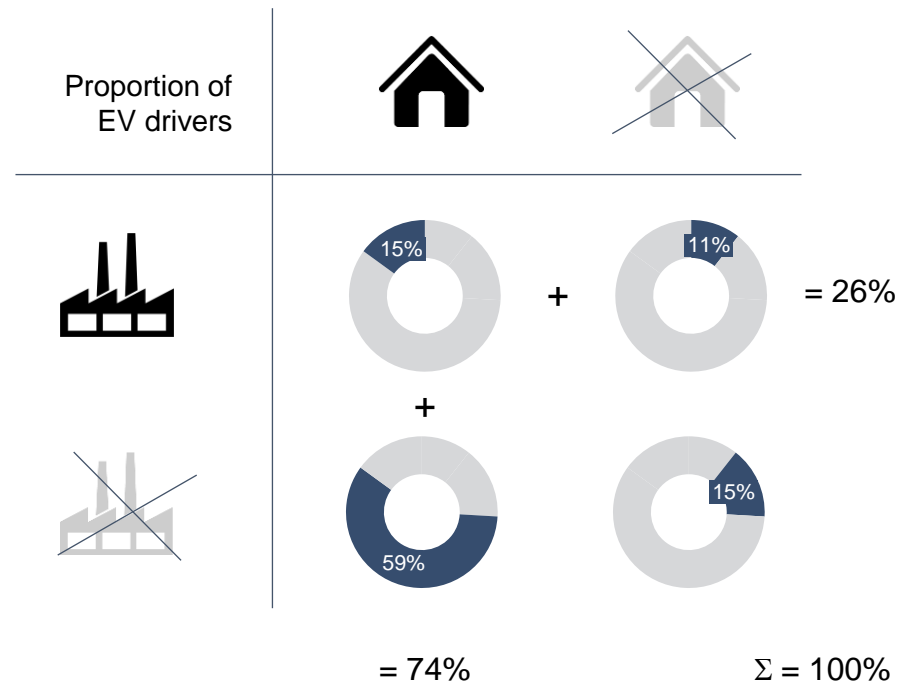
*74% with a charging option at home.*

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.

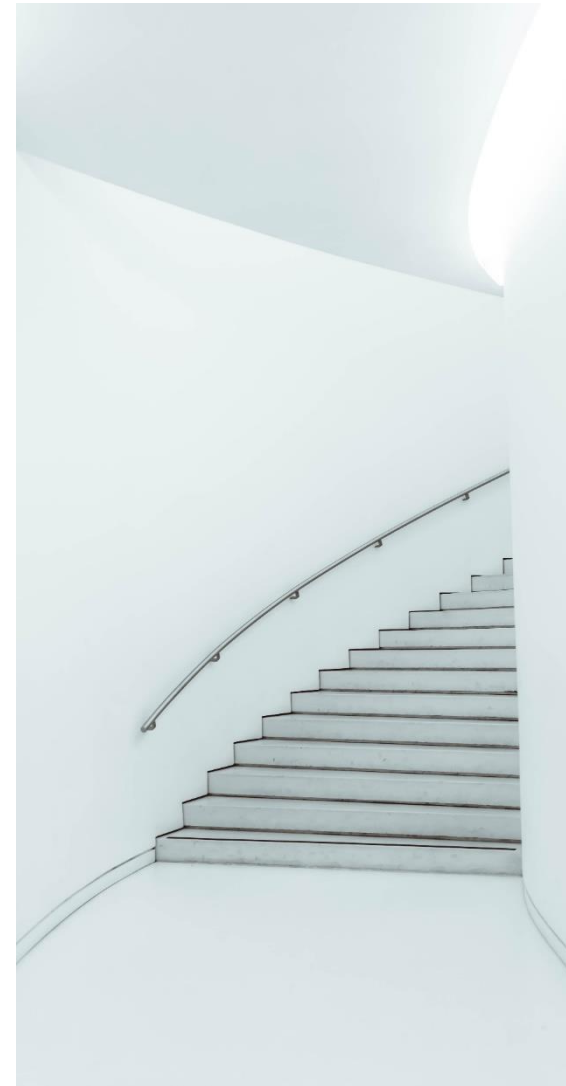
15% of e-car drivers are completely dependent on the public charging infrastructure.

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



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## Charging technology at home

# Preliminary remark

### What kind of infrastructure do innovators and early adopters use?

Not all wallboxes are the same. Not every e-car driver wants everything that is technically possible.

Questions for providers:

- What features do buyers:inside of private charging infrastructure use?
- Who are the most important providers in the competition?
- From which providers do e-car drivers buy private infrastructure?



## Purchase process charging technology at home

# Places of purchase

85% have bought a wallbox from the manufacturer or dealer

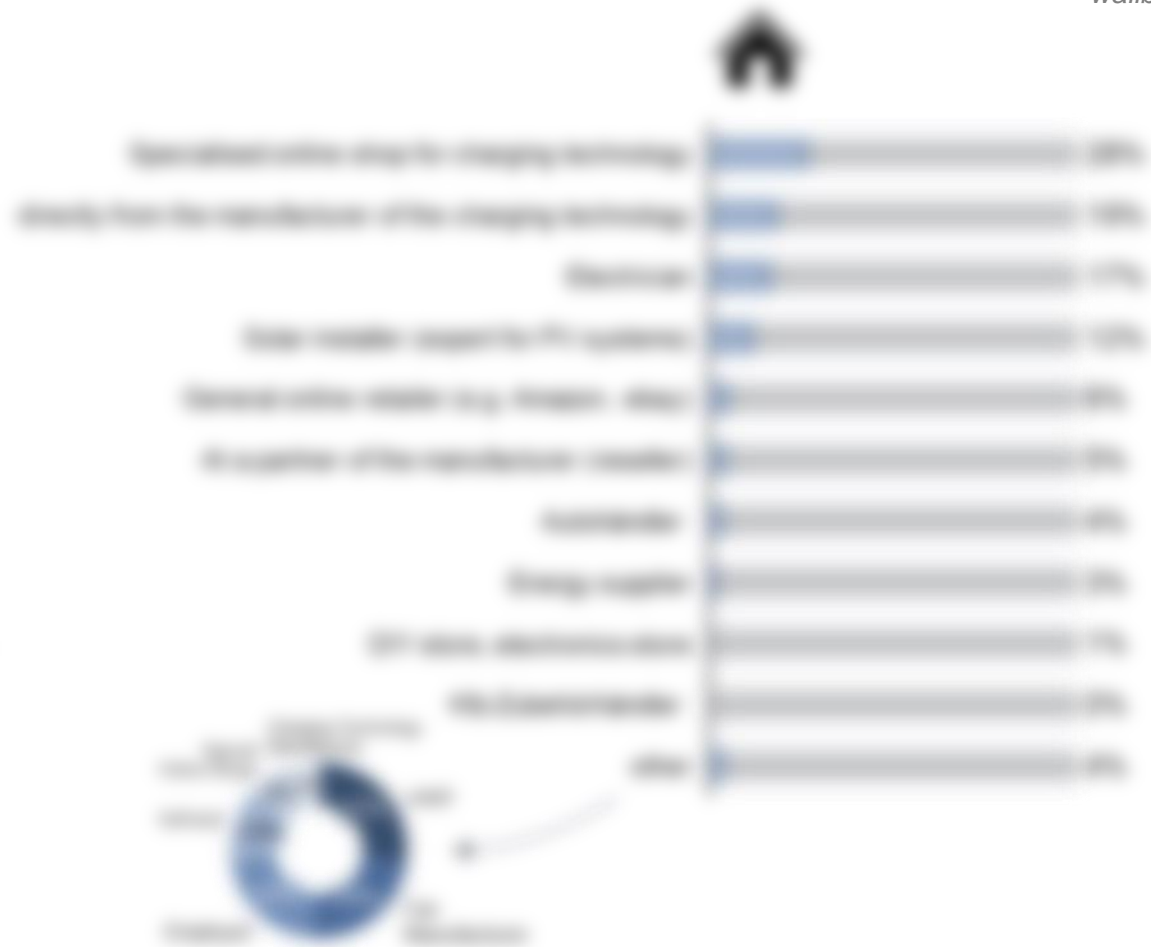
For most of the wallboxes and charging components were purchased through the manufacturer or a dealer of the device

The 10% who purchased directly from the charging operator

This is a result of respondents stating that charging stations through their car lease (2%) or a local utility (1%)

Among the others are mainly self-installed wall wallboxes as well as the wallboxes of the car manufacturers

*"Where did you buy your wallbox?"*



# Purchase process charging technology at home

## Criteria for the purchase decision

*"If you could decide one more time:  
What aspects would be particularly  
important to you when choosing the  
right charging solution at home?"  
(multiple selection possible)*

Functional aspects related to the installation and operation of high requirements

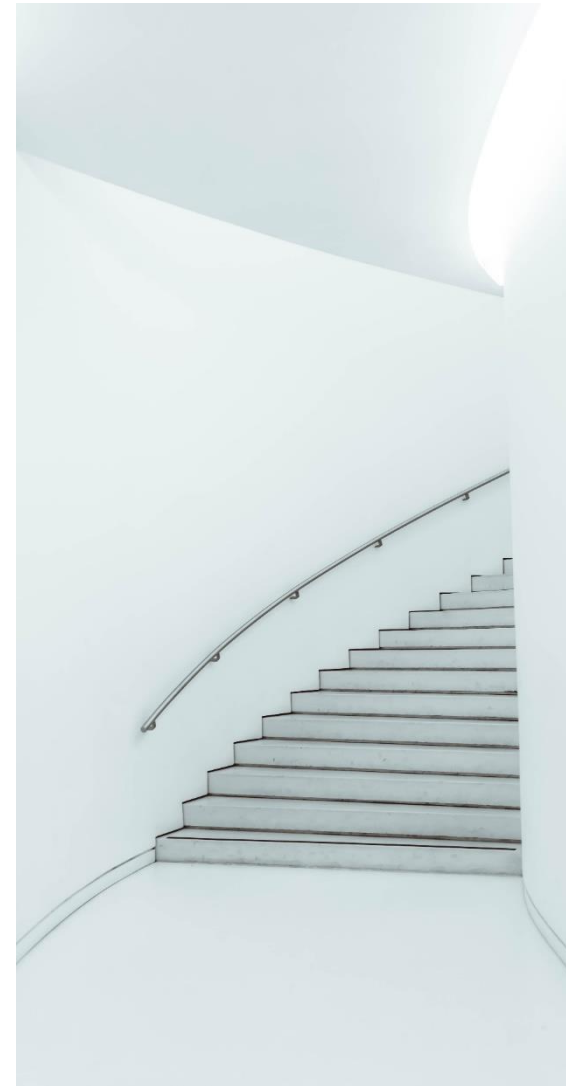
In addition to the basic criteria of price and quality, the range of functions, the speed of charging and the user interface are also important for the operation and selection of the device

Speed and ease of installation and use are also important criteria



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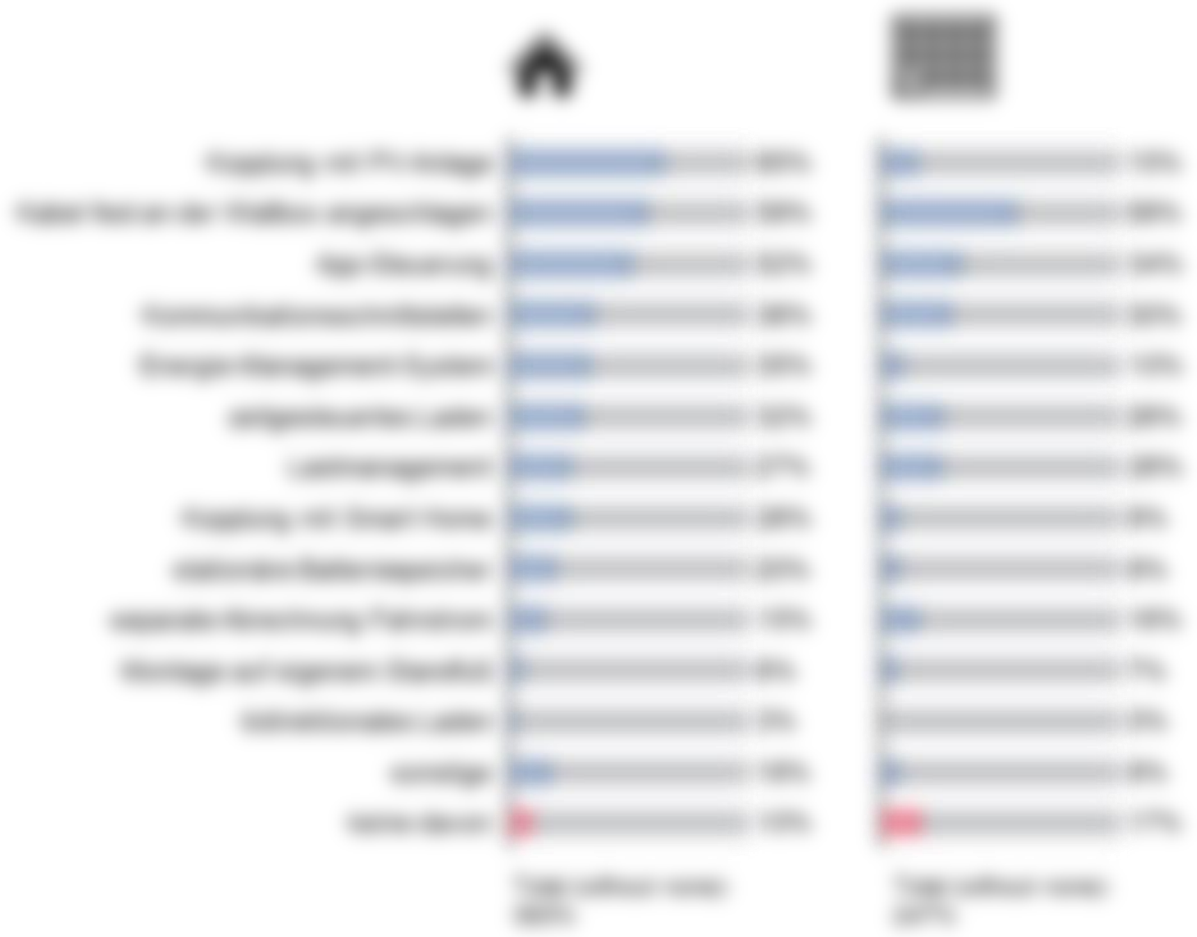
# Charging technology at home

## Technical components

Charging technology = Wallbox:  
 "What technical functions did you place particular emphasis on when purchasing a home charging station (wallbox)?"  
 (multiple selection possible)

Technical components

Technical components



Charging technology at home

# Authorisation type in MFH (actual)

*(This section contains blurred text, likely describing the survey methodology or results.)*

Charging technology = Wallbox:  
 "How do you authorise yourself to charge  
 in your apartment building?"



## Charging technology at home

# Authorisation type in MFH (preference)

Fig. 8: Charge authorization preference in MFH

The chart shows the preference for different authorization types in MFH. The most preferred type is 'Plug & Charge' (45%), followed by 'RFID' (25%). Other types include 'Mobile app', 'QR code', 'PIN code', 'Smart card', and 'None'.

Charging technology = Wallbox:  
 "Which type of authorisation for charging  
 in your apartment building would you  
 prefer?"



# Charging technology at home

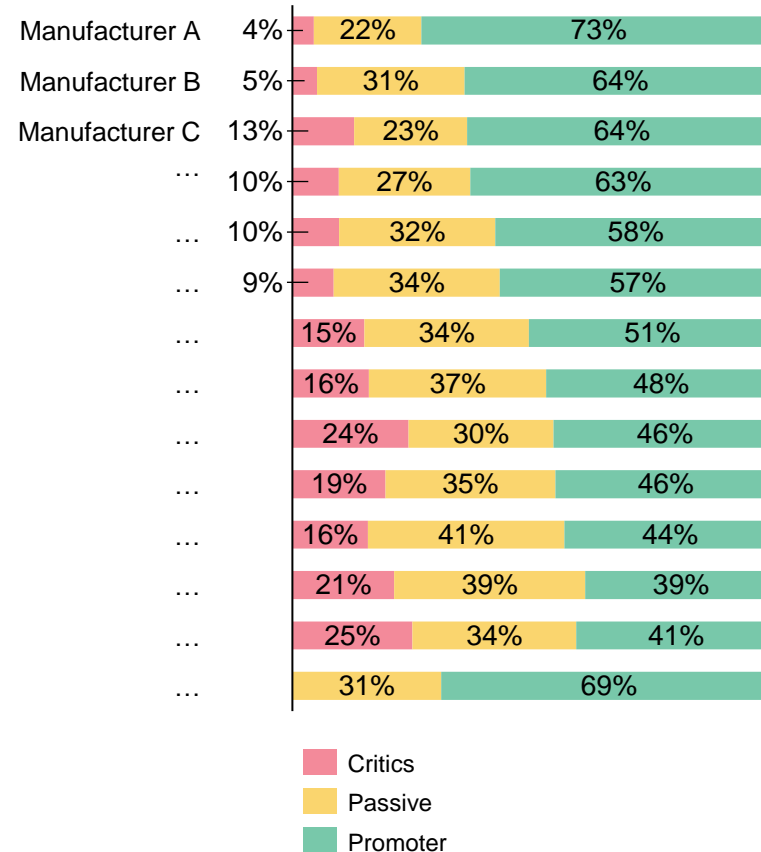
## Net Promotor Score (NPS)

Clear differences between the manufacturers.

Charging technology =  
Wallbox:

"In summary:

How likely are you to recommend **your** home charging solution to a friend or colleague?"





## Charging technology at home

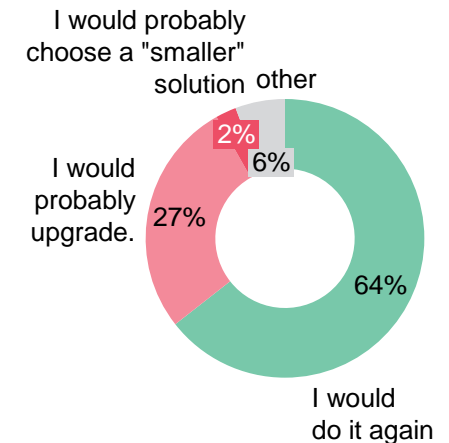
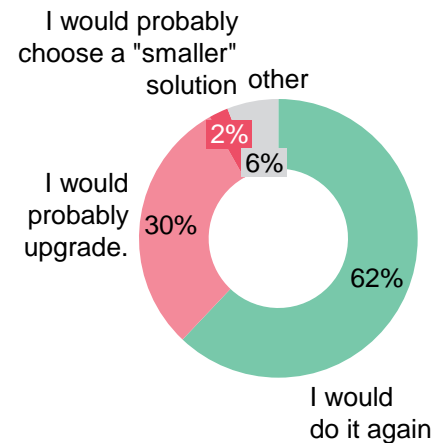
# New decision charging solution

*63% satisfied with their charging solution.*

Two-thirds of the respondents would come to the same decision in the event of a new decision.

A quarter would upgrade, i.e. choose a more technically sophisticated solution, which correlates with the reasons for the low NPS values.

*Charging technology = Wallbox:  
"If you could decide your home charging solution again today, ...?"*



Charging technology at home

# Recommendations (manufacturer of charging technology)

How satisfied are you with the functionality of the charging technology?

The respondents were asked to rate their satisfaction with the functionality of the charging technology. The data shows a high level of satisfaction, with most respondents rating it as 'very satisfied' or 'satisfied'.

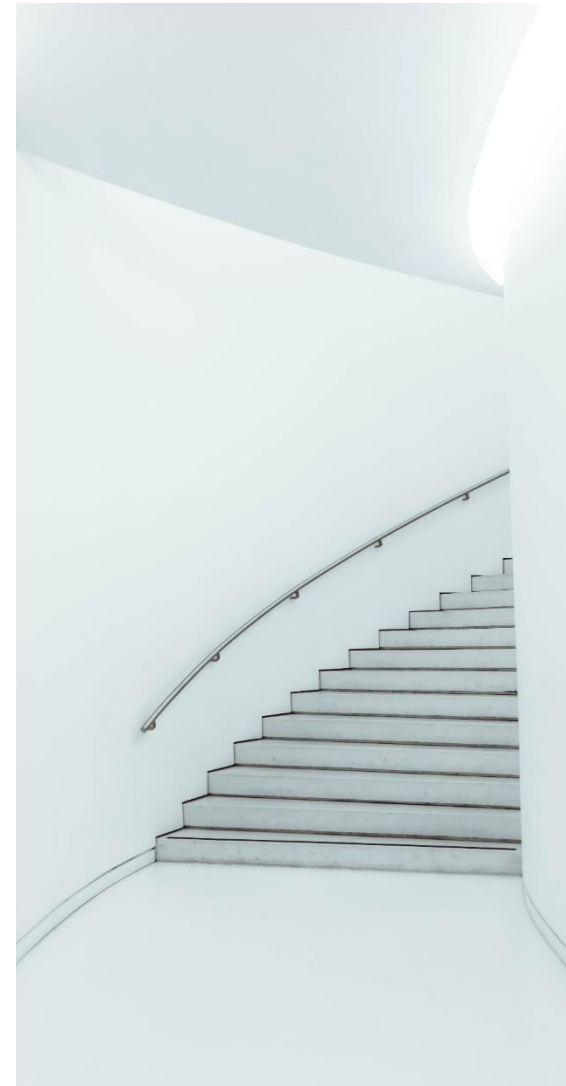
*"Do you have any recommendations to the partners you have dealt with?"*

*"Yes, to the manufacturers of charging technology"*



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After-sales charging technology at home

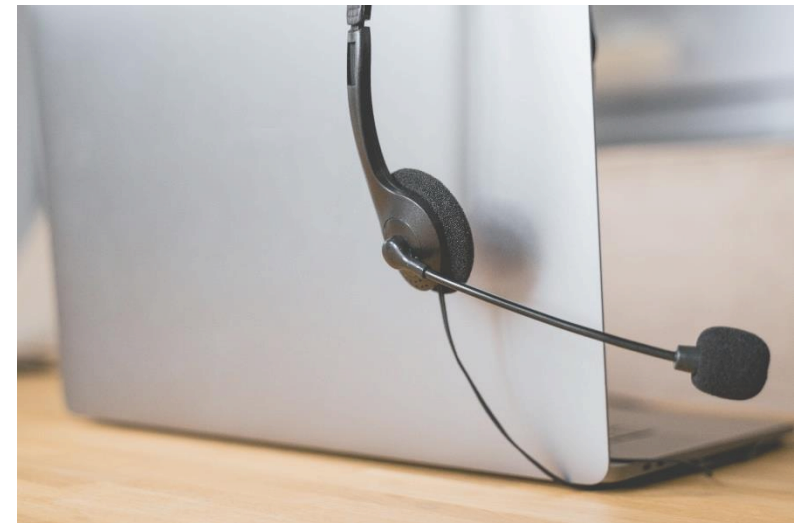
## Preliminary remark

### **The process does not end with the purchase and installation.**

Charging infrastructure also needs to be maintained and expanded. In addition to classic repairs, software updates and the technical competence of the hotline are gaining in importance.

Questions for providers:

- What services do providers have to offer their customers?
- What questions do providers need to be prepared for and be able to help with?



## After-sales charging technology at home

# Reason for service contact

*Clear differences between detached houses and apartment houses.*

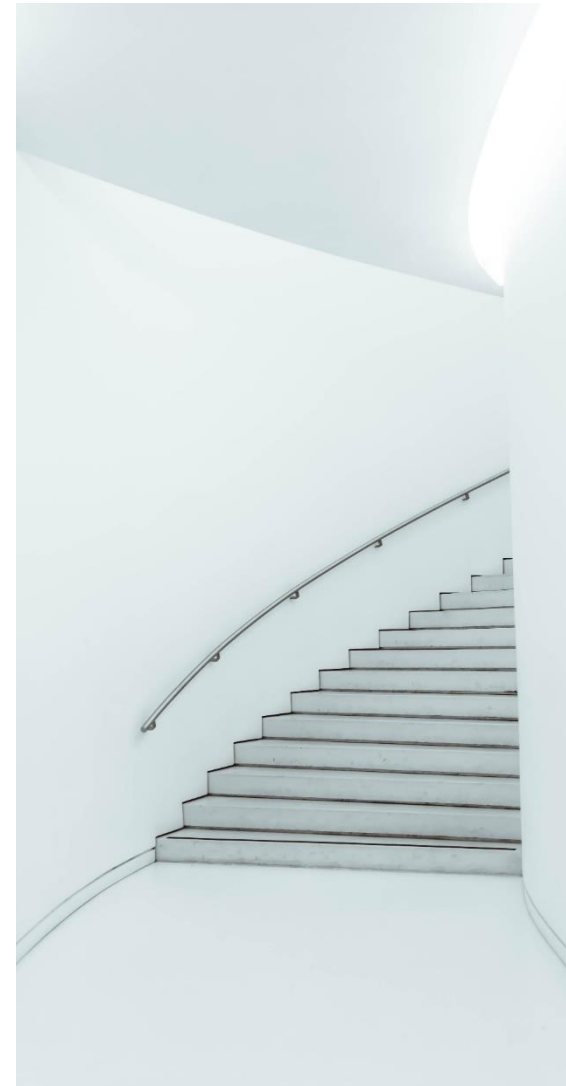
*for contact = yes:  
"What question needed to be answered or what problem needed to be solved?"*

*[Blurred text block]*



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## Charging power contracts

# Preliminary remark

### **Charging current offers significantly higher sales potential than charging technology.**

Most energy suppliers offer charging technology to be able to supply charging current.

Many charging technology providers are considering offering charging power or are already doing so.

Questions for providers:

- Do e-car drivers switch electricity providers when they purchase their e-car?
- Which providers do they switch to?
- How can suppliers position themselves to retain customers or attract new ones in the context of the switch to an e-car?



## Charging power contracts

# Change of supplier

85% have changed their provider

Most of those who have changed or want to change their supplier or switch to a contract with the purchase of an e-car

Half of those who have not changed their supplier with a contract with

*"Have you changed your tariff or energy supplier as part of the e-car purchase?"*





## Charging power contracts

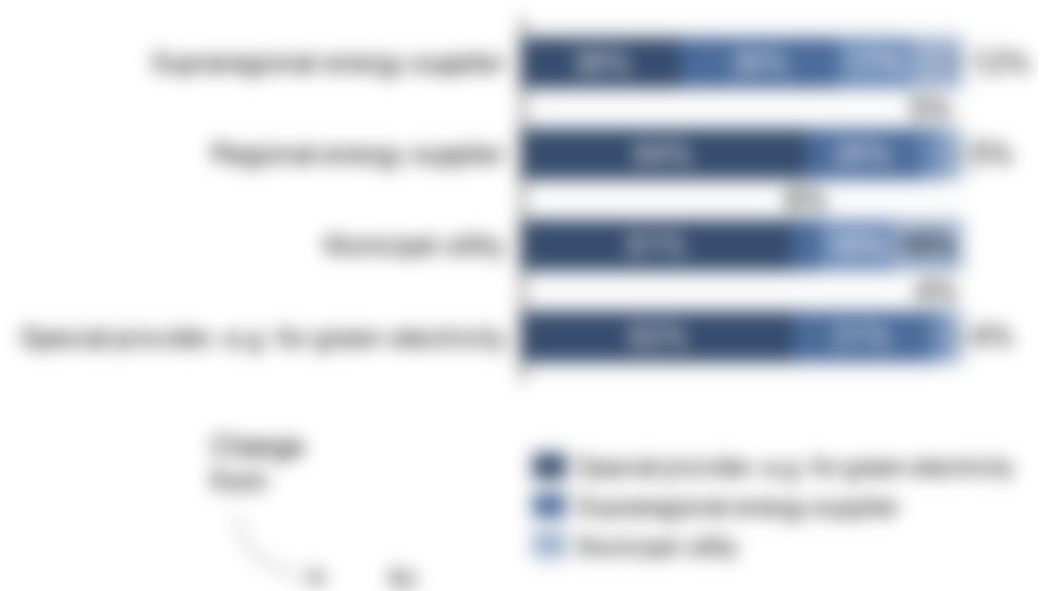
# Migration movements

Head to the appropriate energy supplier

How satisfied are you with your current energy supplier?

How long have you been with your current energy supplier?

Changed supplier = yes:  
"Which energy supplier were you with before you switched?"



# About UScale

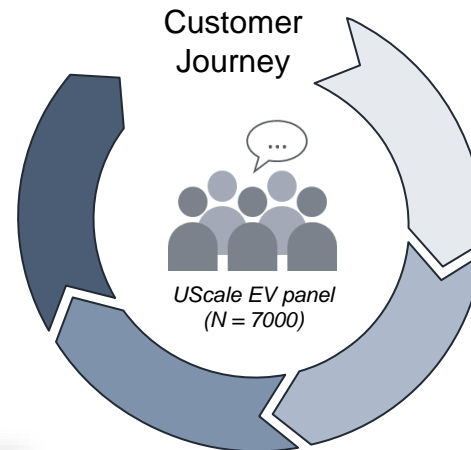
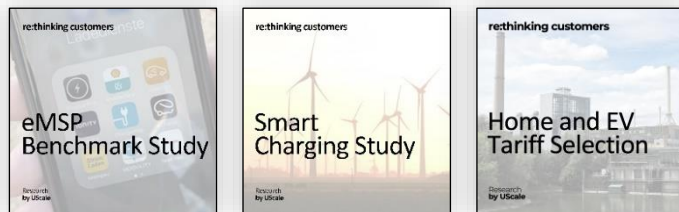
- UScale advises car manufacturers, energy suppliers and service providers on the customer-oriented design of offers and the development of KPI systems for customer perception.
- UScale's work is based on a development framework for product-market fit for digital and innovative products and customer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



## Orientation phase



## Purchase phase



## Charging



## Use phase vehicle



\* All studies in the three DACH markets



plus other countries if applicable



SCALE YOUR USER  
SCALE YOUR BUSINESS



Dr. Axel Sprenger

Geschäftsführer  
UScale GmbH

mail [axel.sprenger@uscale.digital](mailto:axel.sprenger@uscale.digital)  
fon +49 172 - 1551 820  
web [www.uscale.digital](http://www.uscale.digital)  
post Impact Hub  
Quellenstraße 7a  
70376 Stuttgart