

EXCERPT
(30 from 175 pages)

EV Satisfaction Study 2024

EVs from the users' perspective

Objective

Initial Situation:

- Compared to combustion engines, which have been optimised for over 100 years, battery electric vehicles are still at the beginning of their technical development.
- In order to compete successfully, manufacturers need detailed and systematic customer feedback as early as possible.

Objectives:

- What new use cases are resulting from the electric drive? What are the resulting requirements?
- Which e-specific features are particularly relevant and how do they need to be designed?
- How do EV drivers evaluate the concepts? What are the strengths and weaknesses of the various brands?
- What recommendations do users have for their EV's manufacturers?



Target Group

Survey:

- Target Group: Owners of fully battery-electric vehicles (BEV) (no Plug-in Hybrids)
- Survey: Online-Survey (CAWI)
- Market: DACH
- Recruiting: Social Media
- Lenth of Interview: 15 - 20 min
- Field phase: May - July 2024

Sample size:

- Total sample size: N = 4.966



EV-specific Use Cases and Features Used

Driving



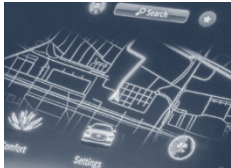
- Range
- Eco-modes
- Regenerative braking
- Driving and functional noises

Display and operating concept



- Range indicator
- Charging indicator
- Energy Monitor
- Other displays in the cockpit

Navigation system



- Functions used
- Usage habits
- Problems
- Recommendations

Connect app



- Functions used
- Usage habits
- Problems
- Recommendations

Charge management



- Route Planning, thermal mgmt.
- Charging settings, charging capacity
- Charging mgmt., charging problems
- Accommodation of charging cable, position of charging port

Heating and air conditioning



- Pre-conditioning, heating, air conditioning
- Usage behaviour
- Problems
- Recommendations

Survey Structure

EV Owners were asked about EV-specific features according to...

Usage habits	<p>"How often do you use ...?" "Which of the following functions do you use...?"</p>
Problems	<p>"Have you already had problems with ...?" "What kind of problems have you had?"</p>
Concept maturity	<p>"How mature are the technical concepts of your [brand] regarding ...?"</p>
Recommendations to manufacturers	<p>"Do you have any recommendations to [brand] on ...?"</p>



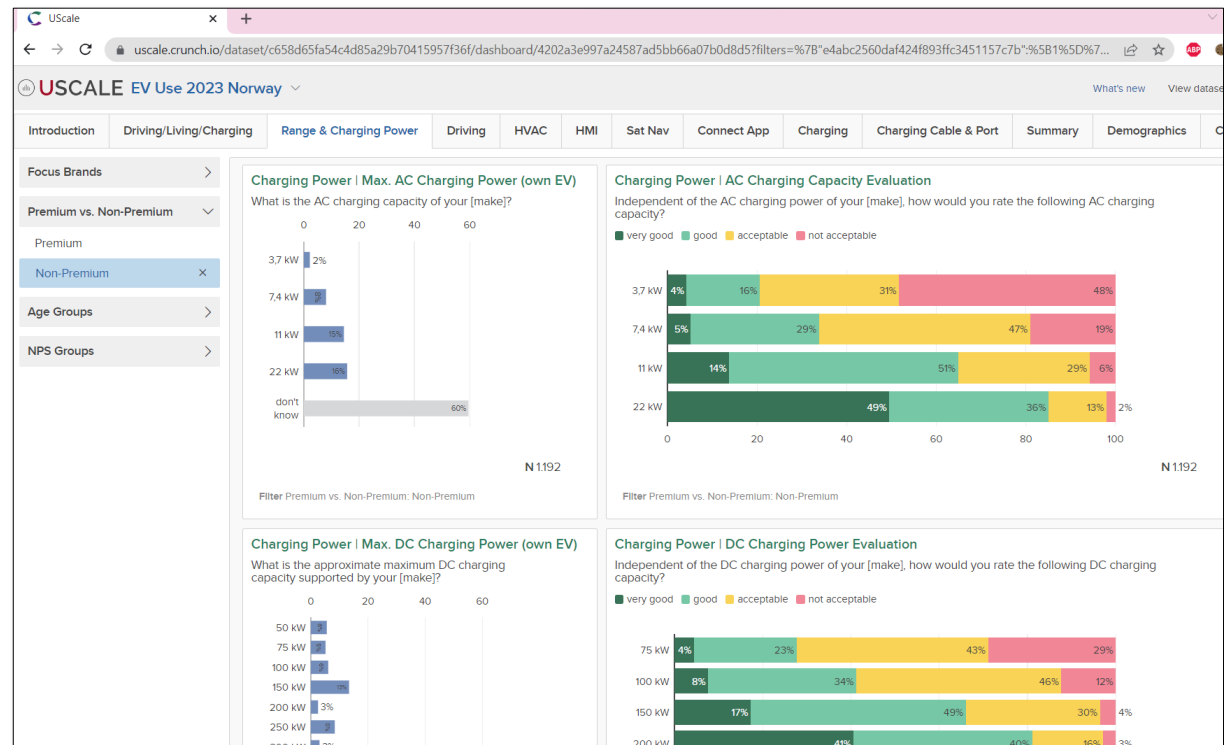
Dashboard for Individual Analyses

Deep dives on individual brands, models and subgroups.

This document only shows splits at brand level and selected verbatim mentions.

The associated dashboard shows the model-level splits and verbatim mentions for each model.

Example

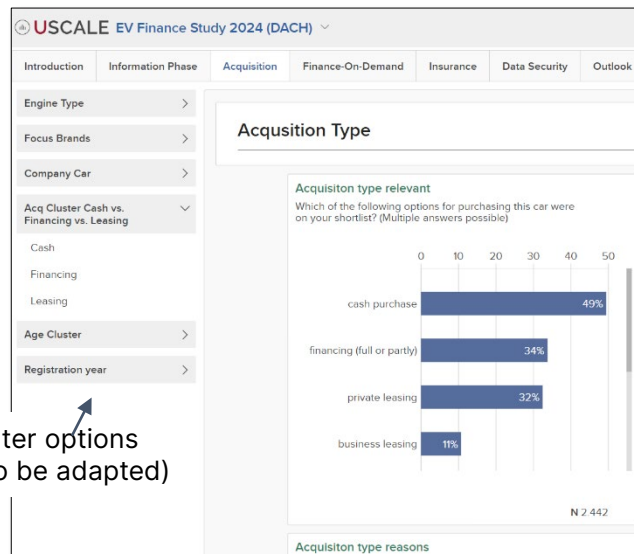


Dashboard for Individual Analyses

Working with the dashboard

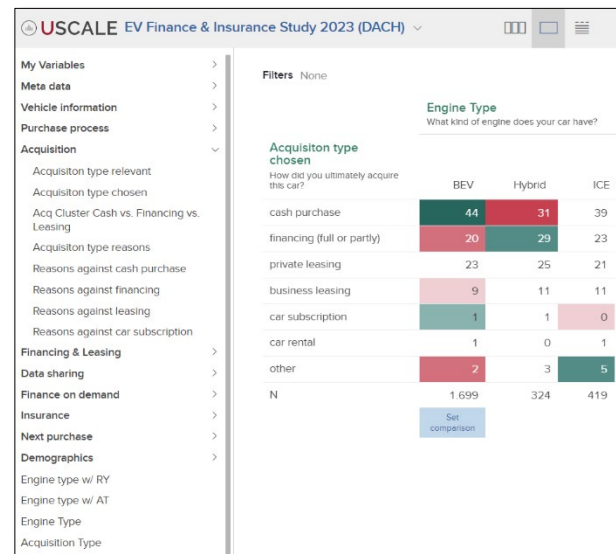
The dashboard provides access to all detailed data. It allows you to carry out your own analyses and download any data splits.

Split of all results by sub-target groups:



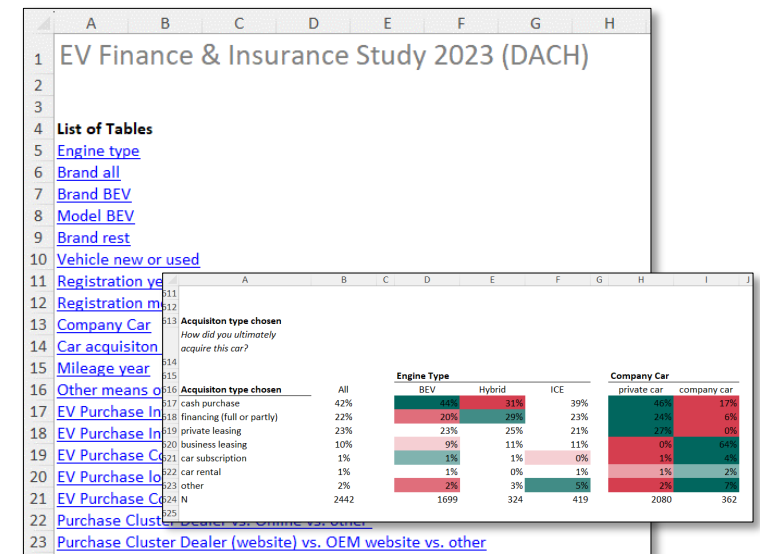
Filter options
(to be adapted)

Correlations and statistical analyses:



Download all data as xls and ppt:

Example



Content

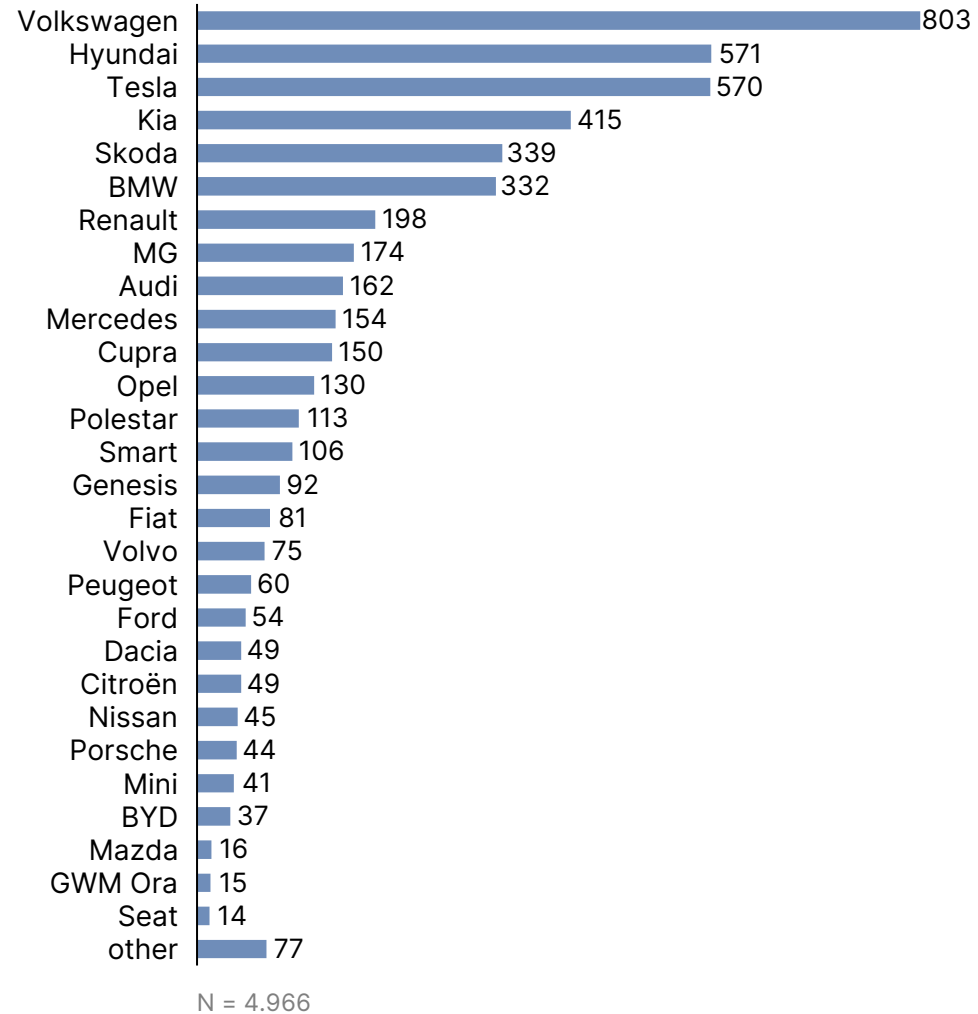
- (1) Management Summary
- (2) Target Group and Sample
 - 1. Makes and Models
 - 2. Demography
- (3) Survey Results
 - 1. Driving, Range, Eco Mode and Regenerative Braking
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 - 6. Connect App
 - 7. Charging Management
 - 8. Overall Rating & Recommendations



Makes and Models

Makes

All relevant makes included in the study.



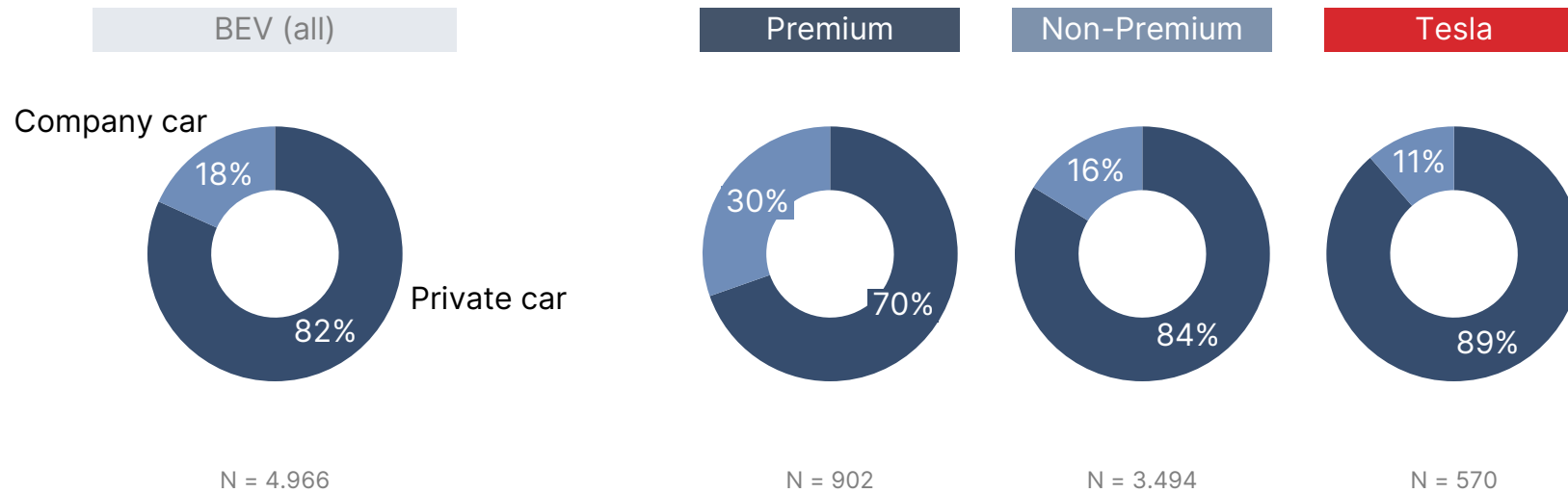
„What kind of EV do you have (make)?“

Makes and Models

Company Cars

High share of company car drivers in the study.

"Is your [EV] a company car?"



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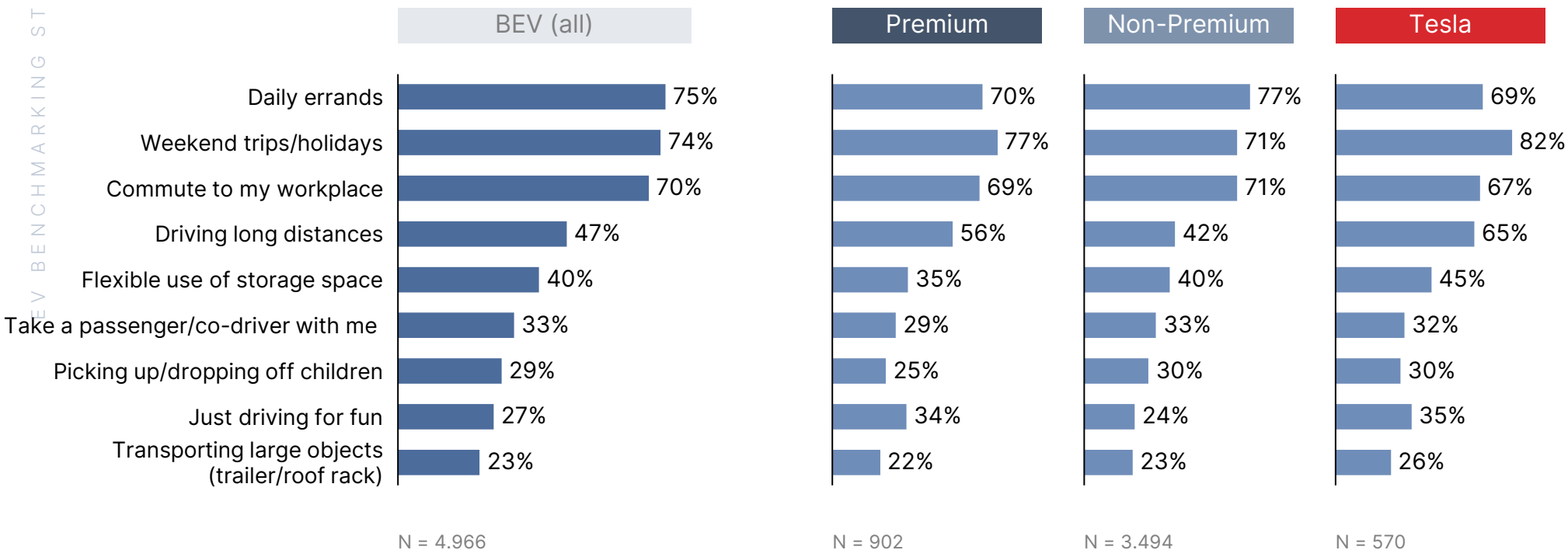
Driving Behavior

Important Usage Situations

The most important usage situations are daily errands, weekend trips and commuting to work.

“In general:
When you buy a car, which usage
situations are important to you?”
(multiple answers possible)

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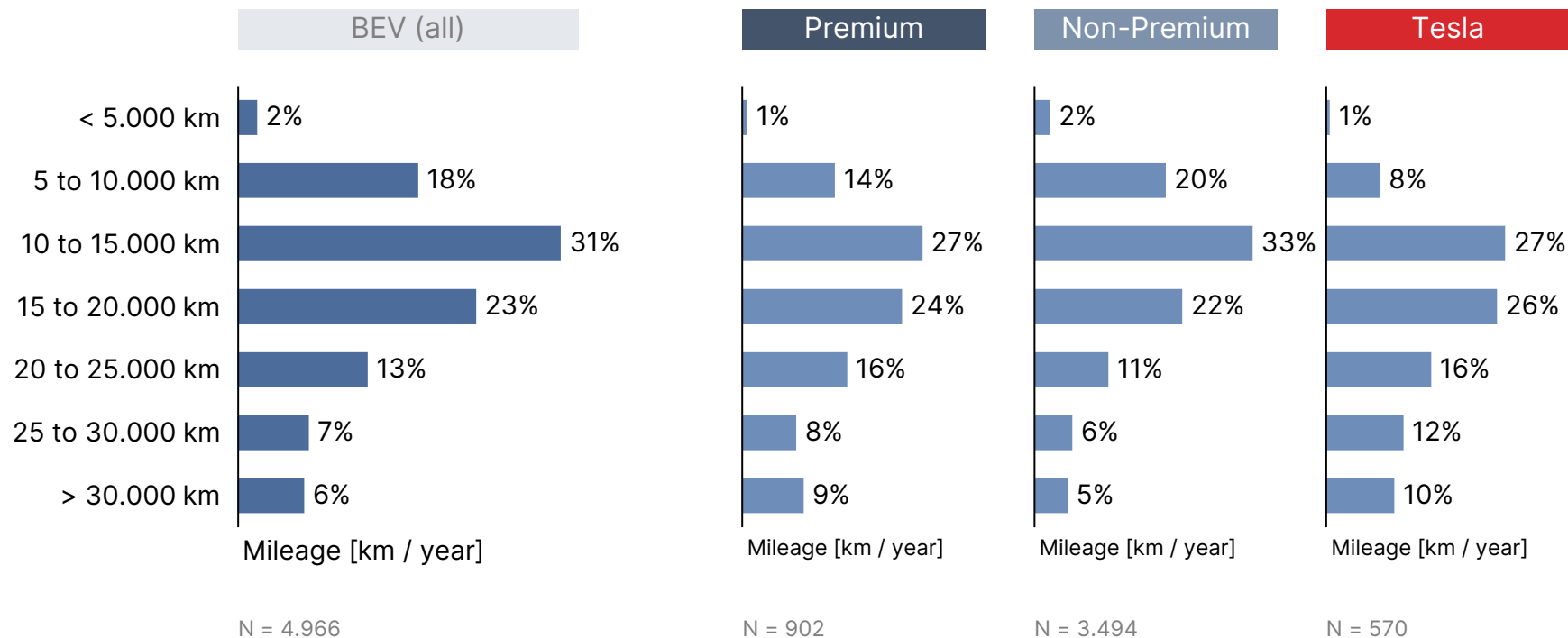


Driving Behavior

Mileage / Year

The average annual mileage is still higher than that of combustion engines (which is less than 15,000 kilometres according to DAT reports).

"Approximately how many miles do you drive annually with your [EV]?"

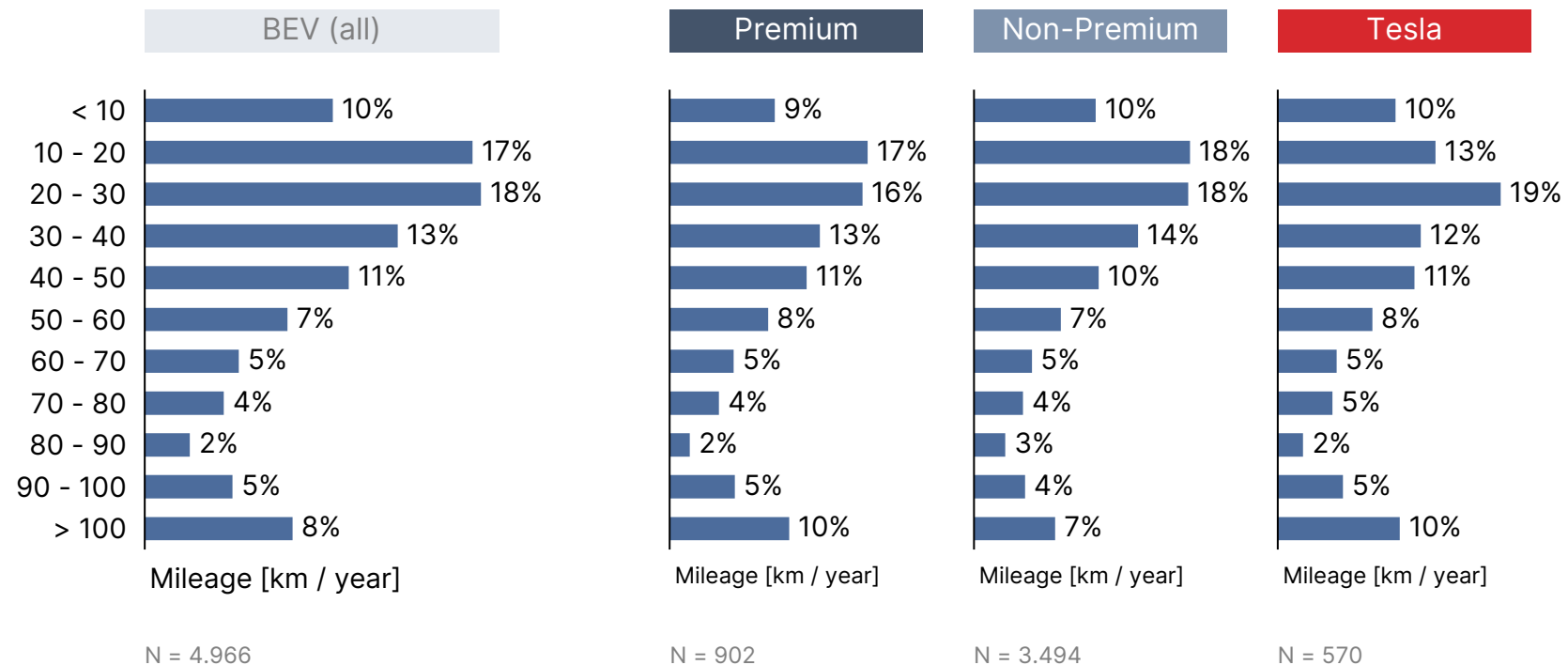


Driving Behavior

Mileage / Day

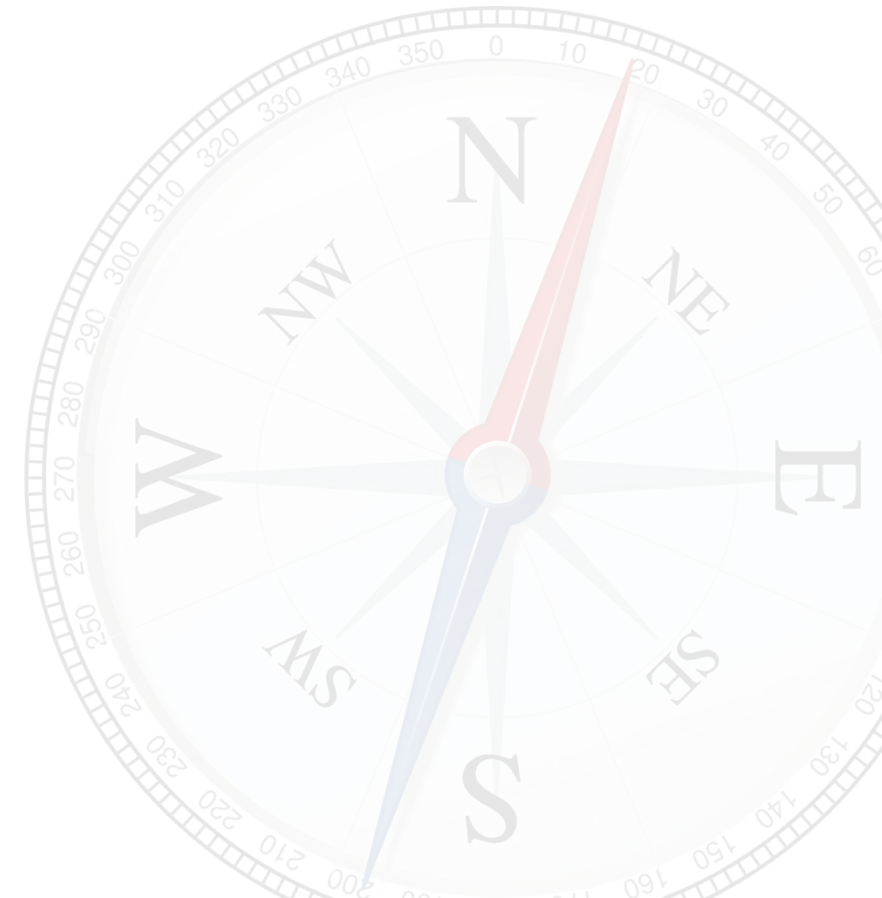
The majority of respondents (58%) travels less than 40 kilometres a day.

"On average, how many miles do you drive your [EV] each weekday?"



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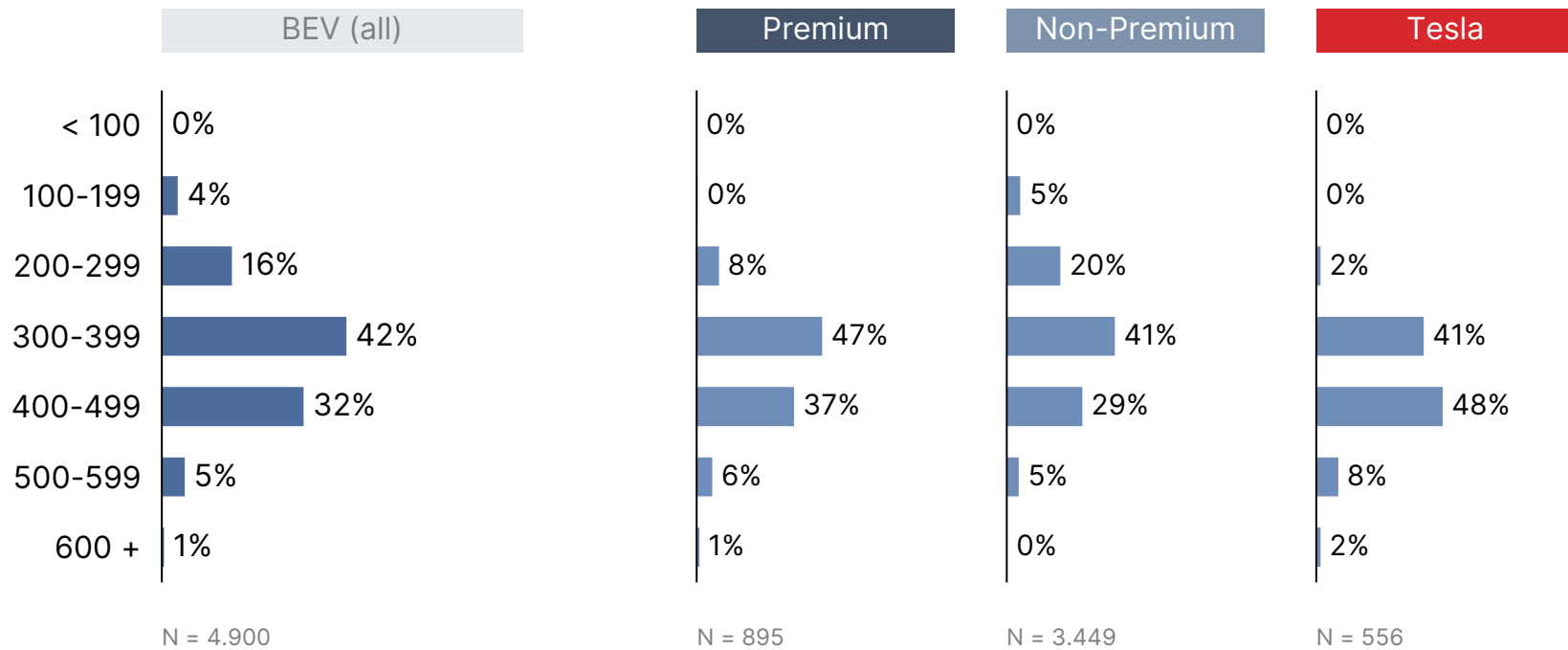


Driving Range

Summer Range

38% of all vehicles in this study have a real summer range of more than 400 kilometres. In 2023, it was only 27%.

“Approximately, what is the “real” summer range of your [EV]?”



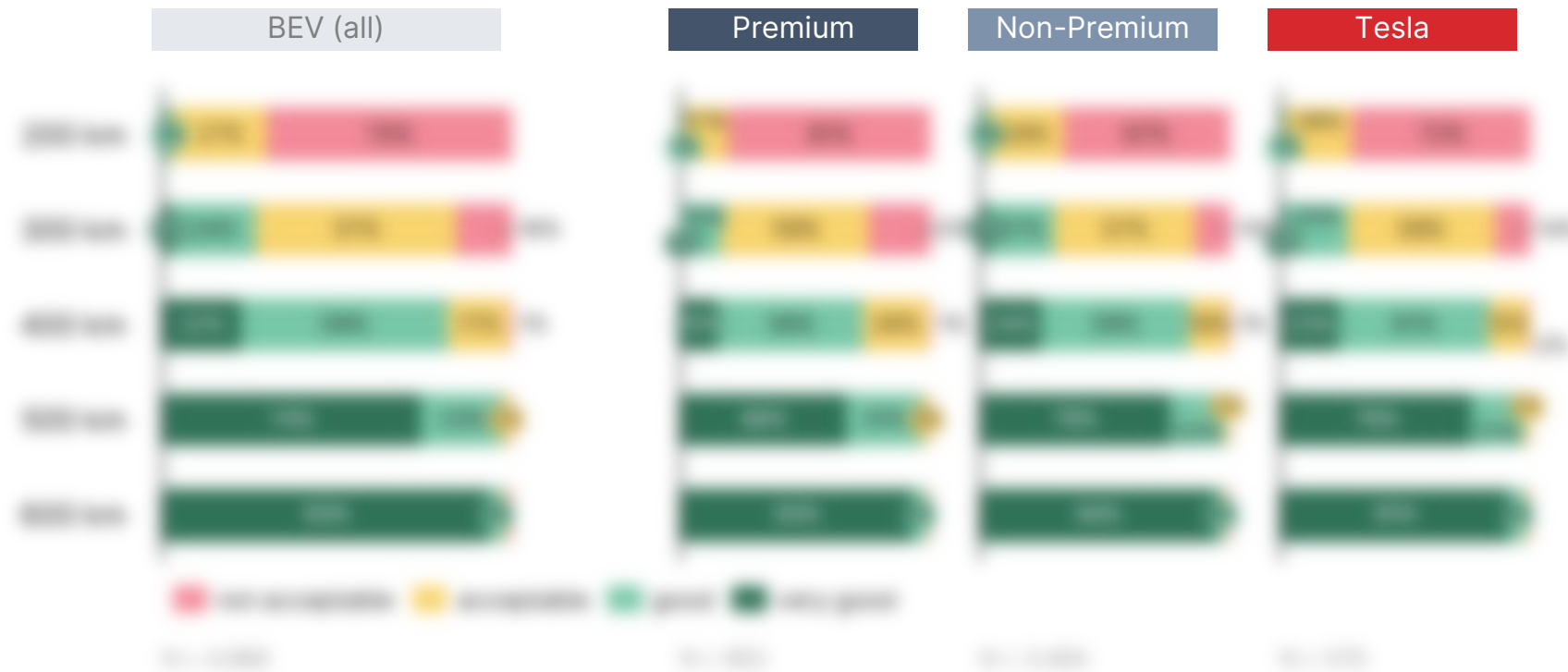
Driving Range

Range Assessment

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However, only 27% think a real summer range of 400 km is very good.

„Regardless of the range of your EV:
How would you rate the following "real" summer ranges for an all-electric vehicle?"



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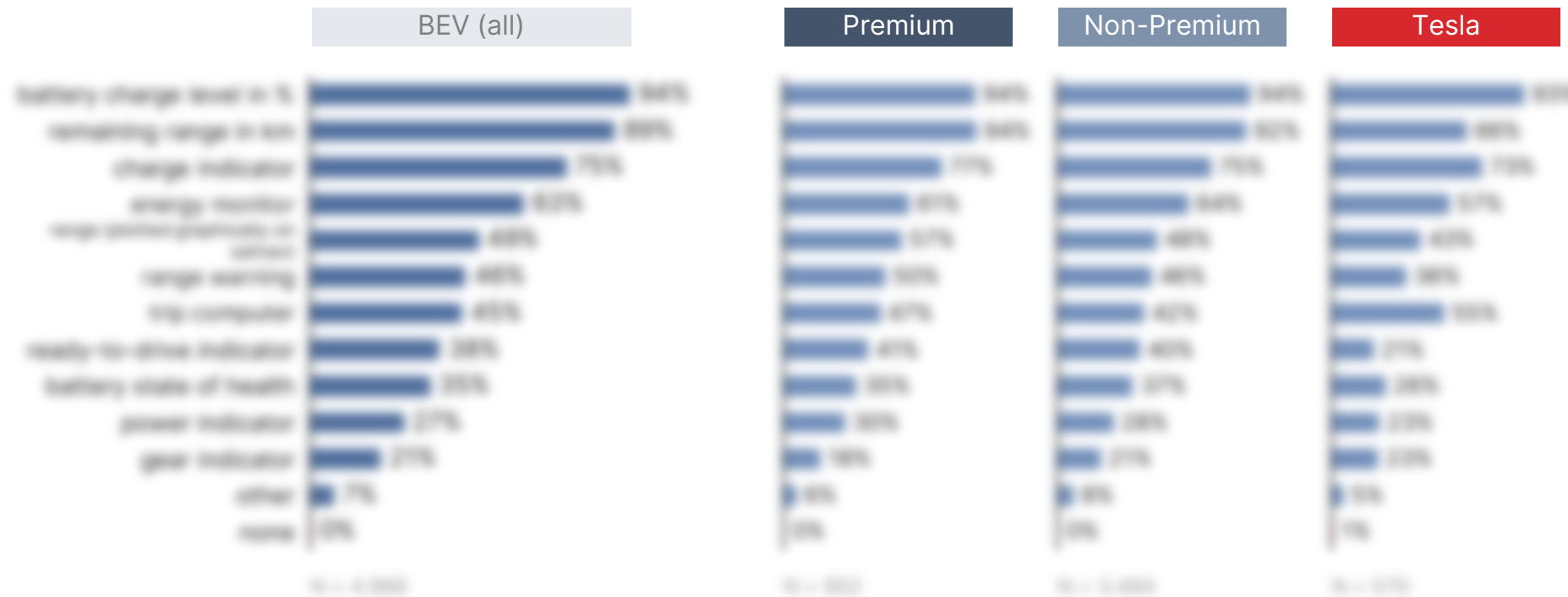
Operating and Display Concept (HMI)

Displays Necessary in an EV

The SoC and remaining range option are vital for nearly every EV driver. Three quarters of EV drivers also consider the charge indicator to be necessary.

“Which displays do you think are necessary in an EV?”
(multiple answers possible)

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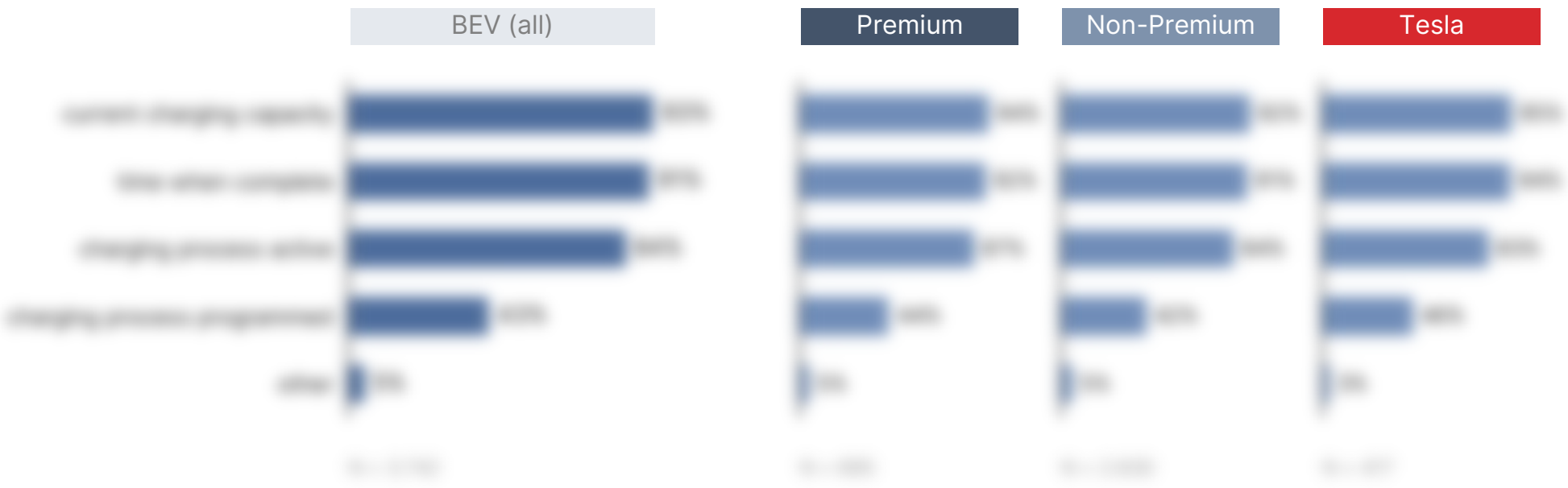
Operating and Display Concept (HMI)

Displays Necessary in an EV (Detail: Charging)

(charge indicator = necessary)
 "As to the charge indicator:
 What information do you consider essential?"
 (multiple answers possible)

The charge indicator includes several displays, all of which are required.

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Operating and Display Concept (HMI)

Problems

Complaints about HMI have decreased by 3 percentage points compared to 2023. The differences between the brands are moderate.

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“Have you had any problems with the comprehensibility or operation of the following displays in the cockpit of your [EV]?”
(multiple answers possible)

Operating and Display Concept (HMI)

Concept Maturity (Energy monitor)

Of the 28 concepts assessed, the HMI concept regarding the energy monitor ranks 17th, with an improvement compared to 2023*.



„How well developed are the various functions and displays of your [EV] regarding ...?“

- * The weighted average of all responses for
- 1 = poorly developed
 - 2 = need for improvement
 - 3 = well developed
- is a value of 2.50 points.
- For comparison:
- 2023: 2.44 points.
 - 2022: 2.33 points.

Operating and Display Concept (HMI)

Recommendations

The main recommendations for the HMI relate to the information displayed.

“Do you have any recommendations to [brand] about the displays in the cockpit?”



For all 1.565 AI clustered verbatims see study dashboard

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 - 7. **Charging Management**
 - Charging Behavior
 - **Charging Capacity**
 - Charging Socket and Cable
 - Setting of Charging Parameters
 - Thermal Battery Management and Charging Curve
 - Charge Monitoring
 - Charging Problems
 - 8. Overall Rating & Recommendations



Charging Capacity

Charging Capacity Acceptable (DC)

A 100 kW charging capacity of 100 kWh is seen as only good by only 20%.

„Independent of the charging capacity of your EV:
How do you rate the following DC charging capacities?“

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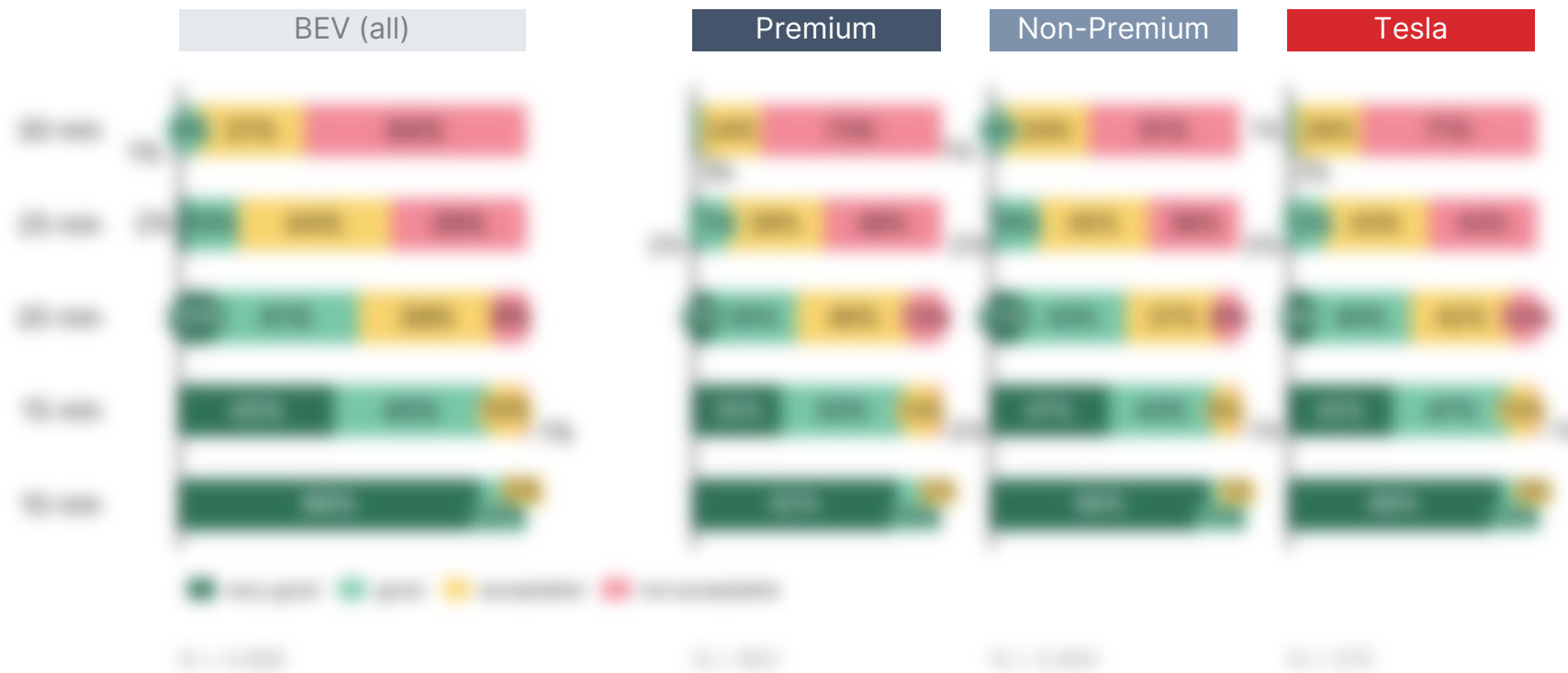


Charging Capacity

DC Charging Times Accepted

A DC charging time of 15 minutes or less is seen as good or very good

„Independent of the charging capacity of your EV:
How do you rate the following DC charging capacities?“



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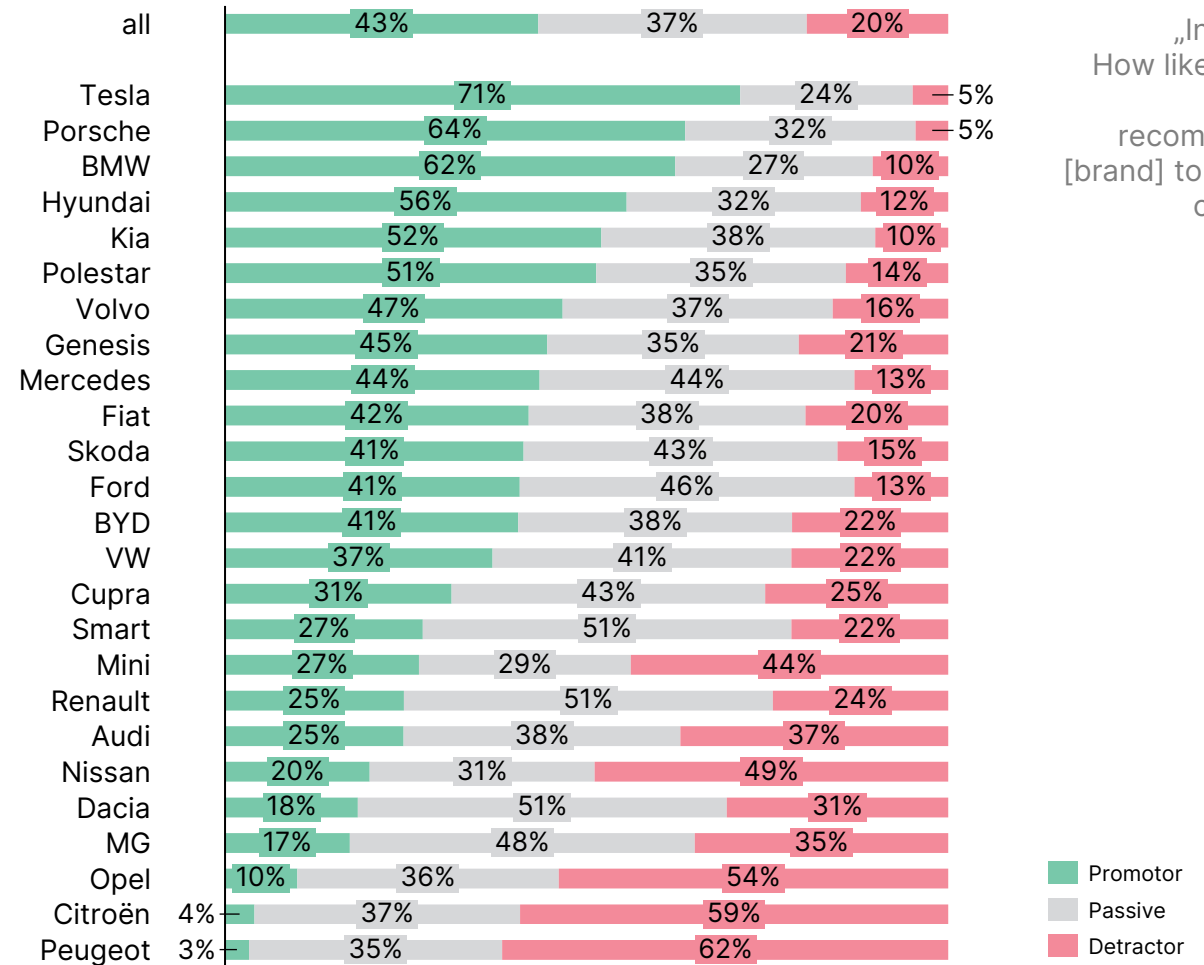
Overall Assessment

Net Promotor Score (NPS)

Tesla still leads the brand list. The market average has significantly increased by 5 points.

The differences in NPS values between the brands, however, are enormous:

- Tesla 66
- Porsche 59
- BMW 50
- Hyundai 43
- Kia 42
- Polestar 37
- Volvo 31
- Mercedes 31
- Genesis 24
- Fiat 22
- Ford 28
- Skoda 26
- BYD 19
- VW 15
- Cupra 6
- Smart 6
- Renault 1
- Audi -12
- Dacia -12
- Mini -17
- MG -18
- Nissan -29
- Opel -44
- Citroën -55
- Peugeot -58



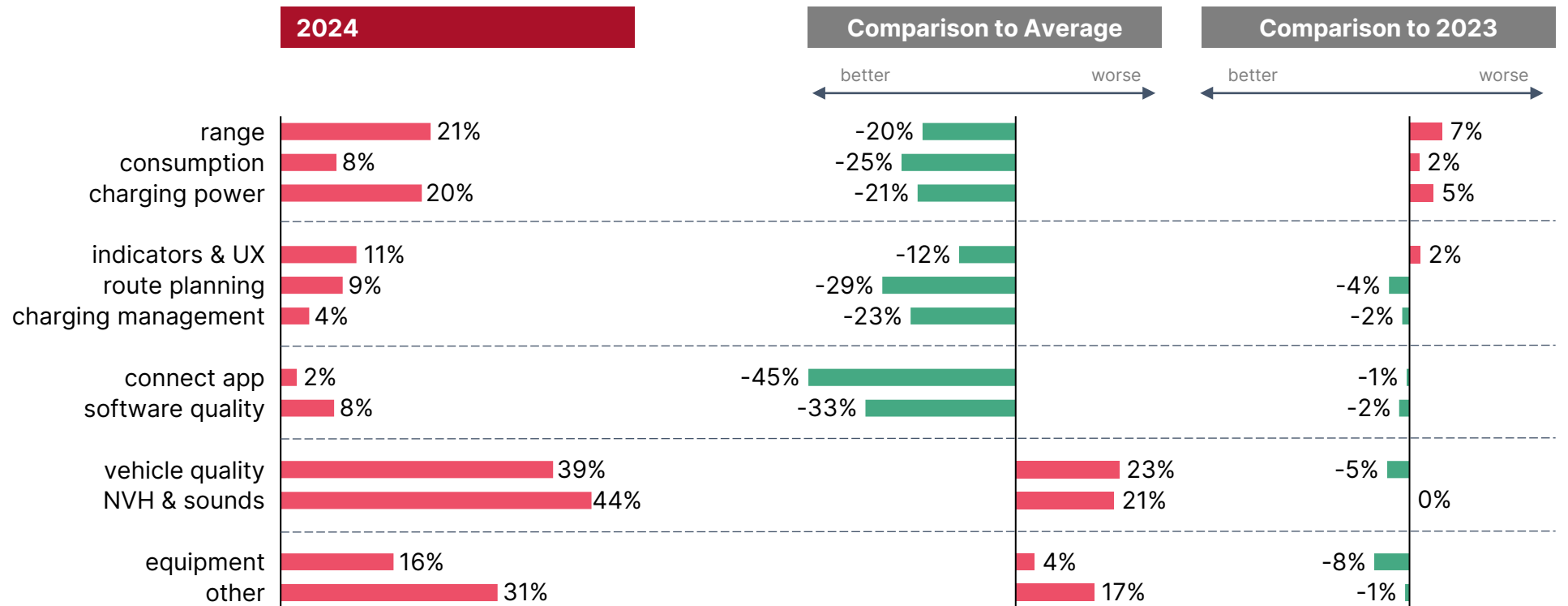
„In summary:
How likely is it that
you would
recommend your
[brand] to a friend or
colleague?“

N = 37 - 803

Prioritized Needs for Improvement: Tesla

Impressive performance in all EV related areas. Strong need for improvement in quality and NVH.

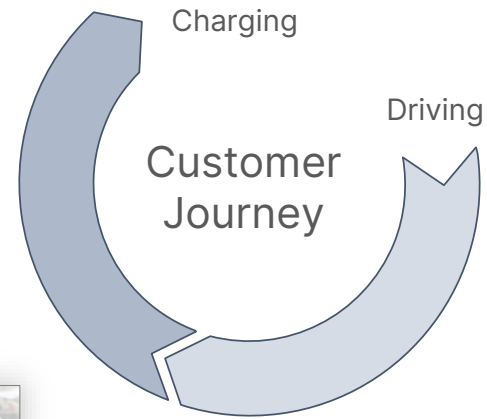
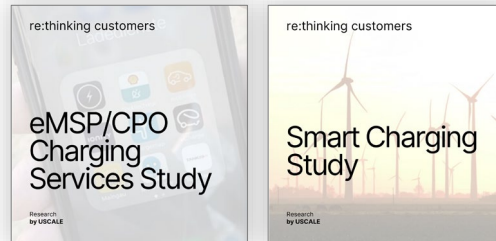
„In summary:
What should [brand] work
on as a priority?“
(multiple answers possible)



N = 570

Focus Studies on all Touchpoints

Business Models



'Purchase



Charging



Usage



Our Clients

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...and many more.



SCALE YOUR USER
SCALE YOUR BUSINESS

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