strategy&
Part of the PwC network

4th edition

eReadiness 2023

Survey Report

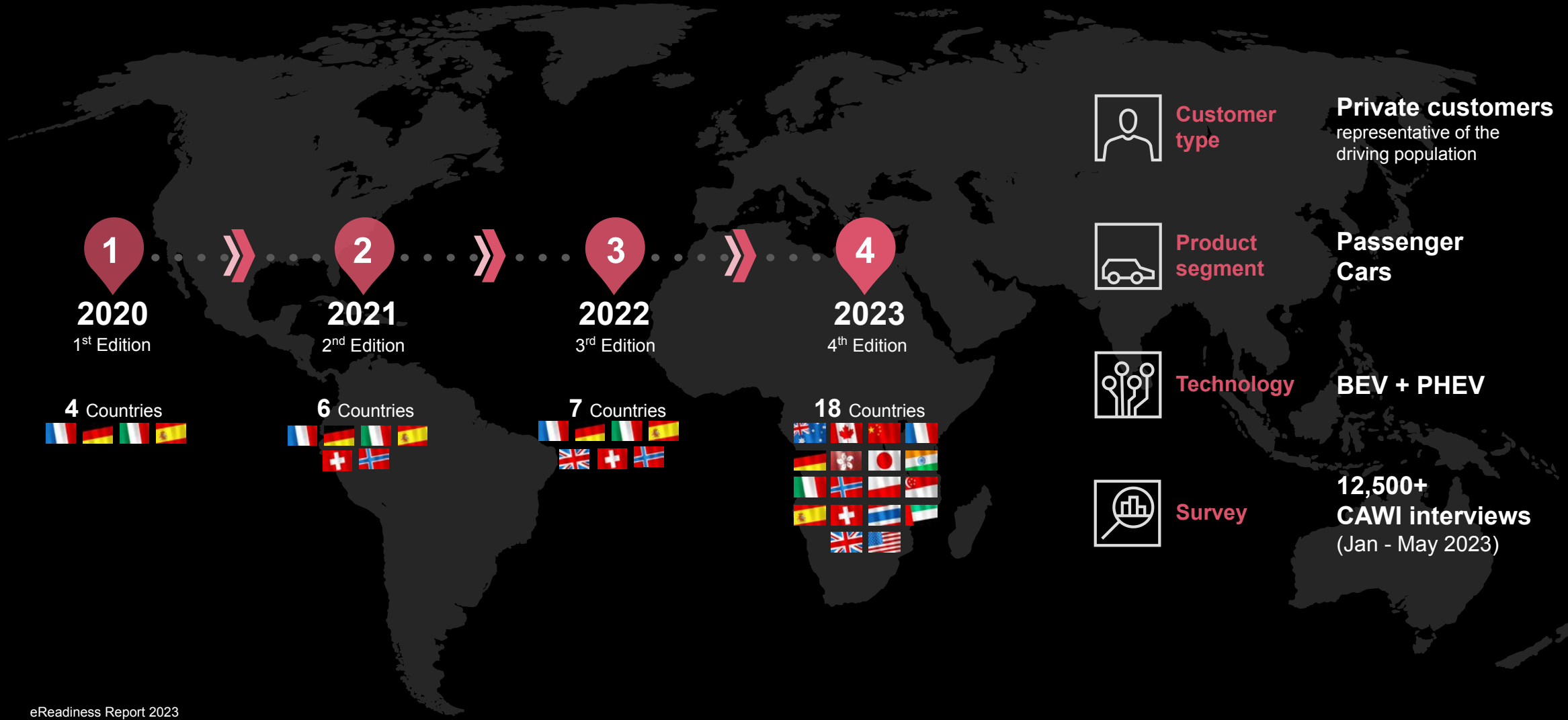
Customer needs and recommended actions for e-mobility players

September 2023

Agenda

The 4th edition of the study provides updated perspectives on the short-term development of the e-mobility business in 18 markets

About the study



Customer type

Private customers
representative of the driving population

Product segment

Passenger Cars

Technology

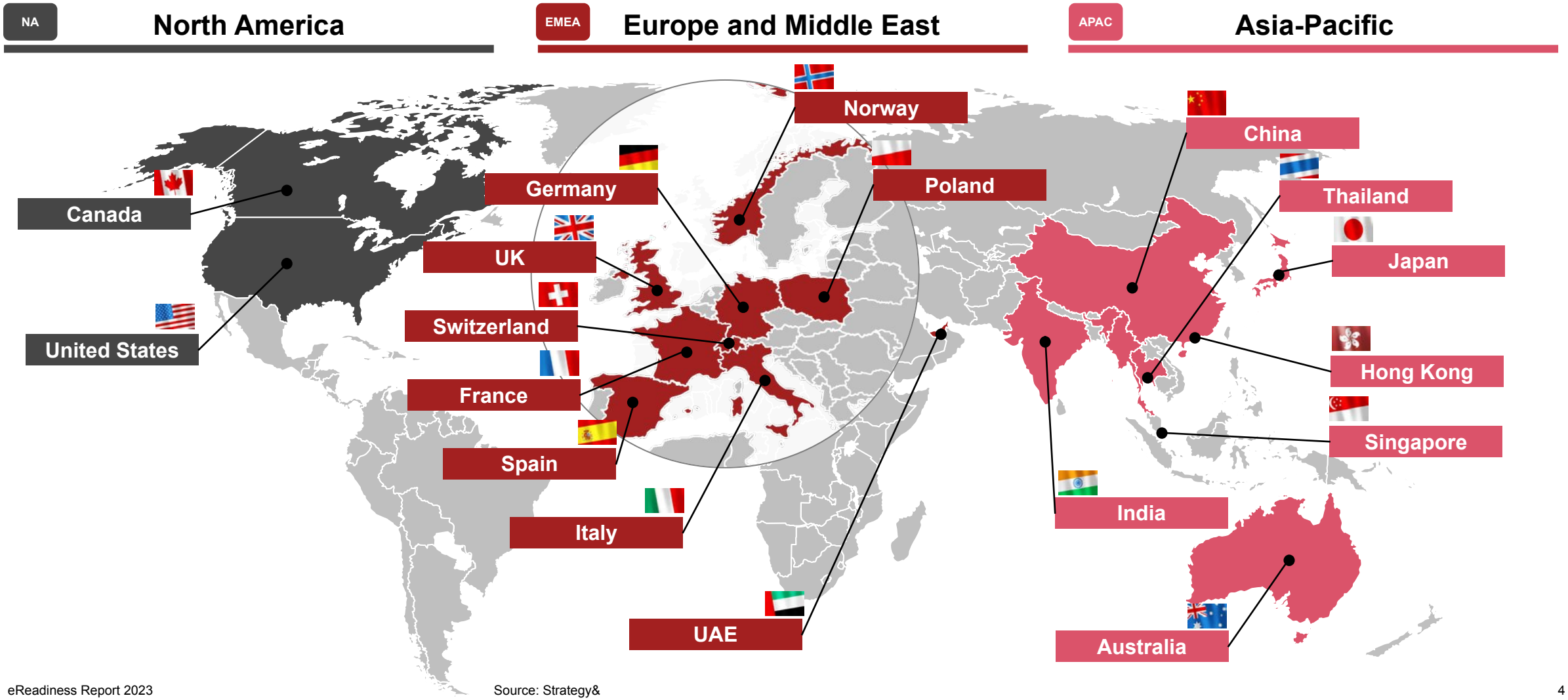
BEV + PHEV

Survey

12,500+ CAWI interviews
(Jan - May 2023)

This year edition covers 18 countries across the globe, grouped into three regions

eReadiness 2023 – Countries in scope



Source: Strategy&

01.

Executive Summary

Key insights from the consumer research sample

Consumers demand

- Consumers show a strong interest in e-mobility, with c. 30% of those surveyed disclosing an intention to buy an EV in the next 2 years
- EV Owners (6% of the respondents) are mainly high-income, middle-aged males living in city centres with access to private parking spaces
- EV Prospects (61% of the respondents) have ~20% less income than EV Owners. Of the 6 personas identified, Tech Enthusiasts, Dreamers and Pragmatic are the 3 determined to have the greatest intention of buying an EV and represent c. 70% of the demand in the next 2 years, suggesting that the EV market is shifting towards a mass market
- Sceptics (31% of the respondents) are predominantly women with a lower available income and c. 6 years older than EV Prospects
- Online vehicle sales represent 20% of EV sales, mainly for premium vehicles, with 65% of consumers considering purchasing their next vehicle online, this is driven primarily by convenience and price transparency
- Used EV interest is significant, with 60% of EV owners declaring an interest in purchasing a used car due to the lower costs and immediate availability. However, uncertainty surrounding battery state of health (SoH) remains a key barrier

eReadiness Index

- In Europe, Norway, Switzerland and Germany are the most e-ready countries, driven by a mature charging infrastructure and a high consumer demand. Italy and Spain lag behind despite generous government incentives
- In APAC, Hong Kong, China and Singapore are the most e-ready countries with high customer demand and, especially in Hong Kong and China, a well established charging infrastructure
- Australia appears to be the least eReady country across the entire panel

Source: Strategy&

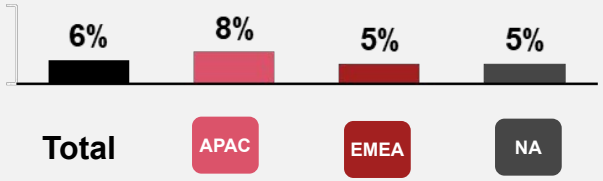
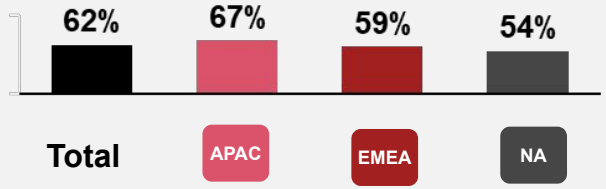
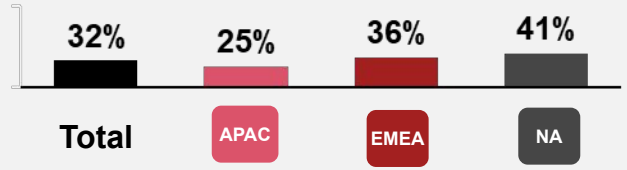
02.

Consumer viewpoints

Consumers have been grouped into 3 main clusters within 3 regions: EV owners, EV prospects and EV sceptics

Consumer survey – Clusters and investigation areas

12,816 respondents

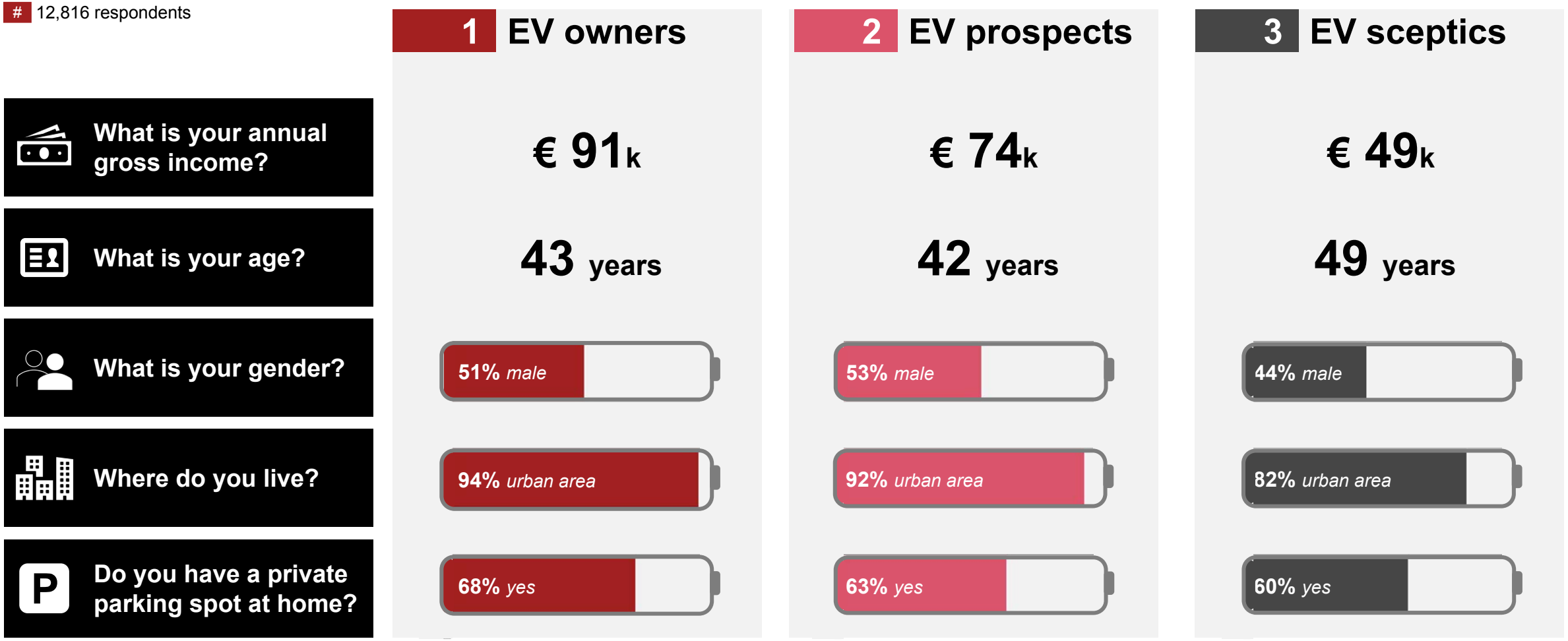
	1 EV owners	2 EV prospects	3 EV sceptics
Description / Size	• People who currently own an EV	• People who have declared their intention to buy an EV in the next 5 years	• People who have declared their intention not to buy an EV in the next 5 years
			
Focus area	• Who are EV owners • What has been their customer journey • What are their usage habits	• Who are the key personas and their distinctive traits • What are key reasons to buy	• Who are EV sceptics and what are their distinctive traits • Why are they sceptics and what are their main reasons for rejecting EVs
Outcome	Best practices and lessons learnt to be leveraged to define EV specific customer journeys	Key customer profiles, with associated demographics and needs, to support targeting actions of OEMs	Concerns and purchasing barriers to be addressed by OEMs communication to stimulate intention to buy

Source: Strategy& analysis on feedback from consumer survey

Overall, EV owners are younger, wealthier and with greater access to private parking spaces compared to prospects and sceptics

Consumer survey – Cluster profiles

12,816 respondents



Source: Strategy& analysis on feedback from consumer survey

Current EV owners tend to use their car more often for commuting, and are more likely to combine it with other means of transportation

Consumer survey – Cluster profiles

12,816 respondents

	1 EV owners	2 EV prospects	3 EV sceptics
Do you commute with a car?	86% yes	78% yes	60% yes
Do you combine the car with other means?	60% yes	52% yes	31% yes
How many days per week do you commute?	4.4 days	4.2 days	3.2 days
How many km do you commute daily?	23 km	28 km	20 km
What is your typical car tenure?	5.9 years	8.1 years	9.8 years

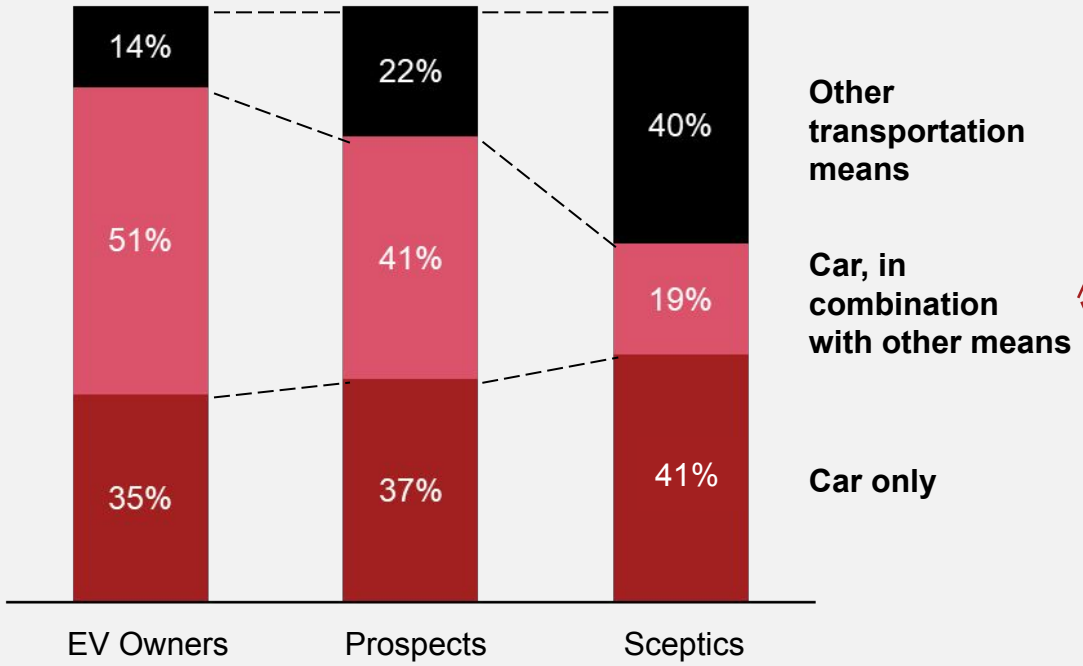
Source: Strategy& analysis on feedback from consumer survey

EV owners commute primarily with their car and adopt more multi-modal solutions compared to sceptics

Mobility needs – Commuting

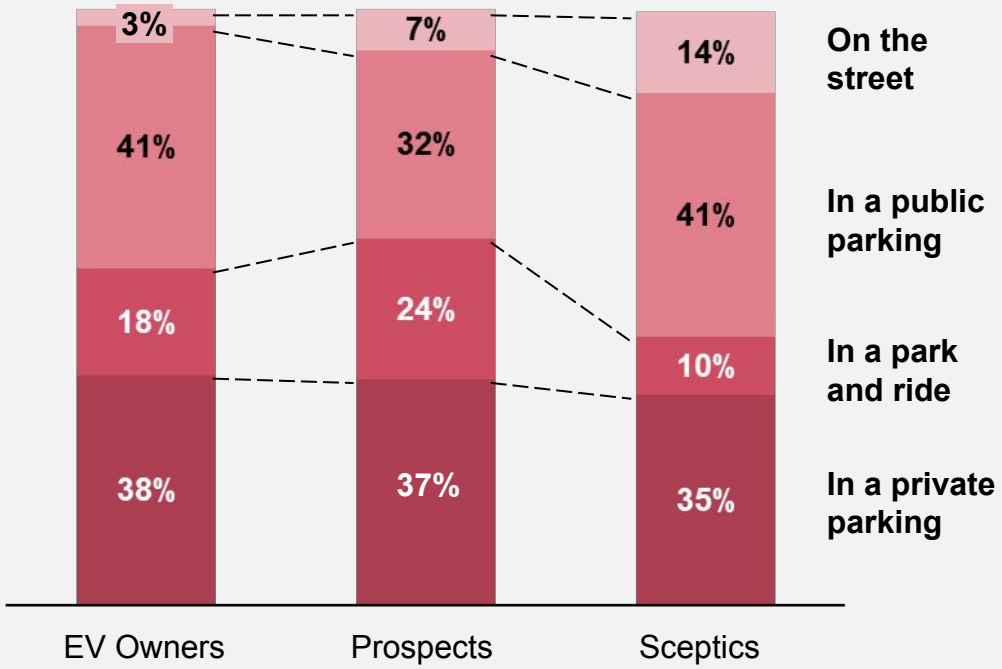
Which of the following means do you use to commute?

12,816 respondents



Where do you typically park your car when you switch means?

4,383 respondents



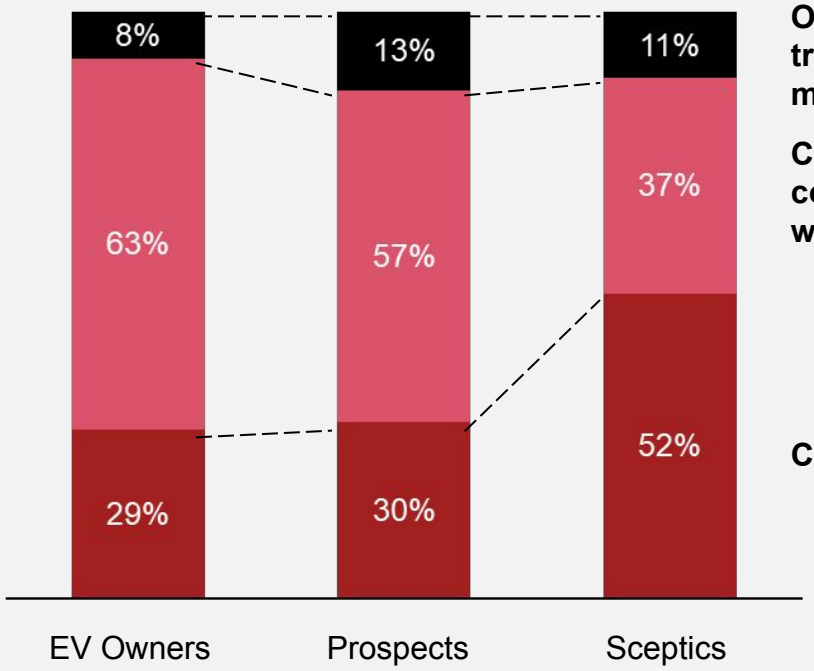
Source: Strategy& analysis on feedback from consumer survey

Multimodality gains an even more important role across all clusters during the free time

Mobility needs – Free time

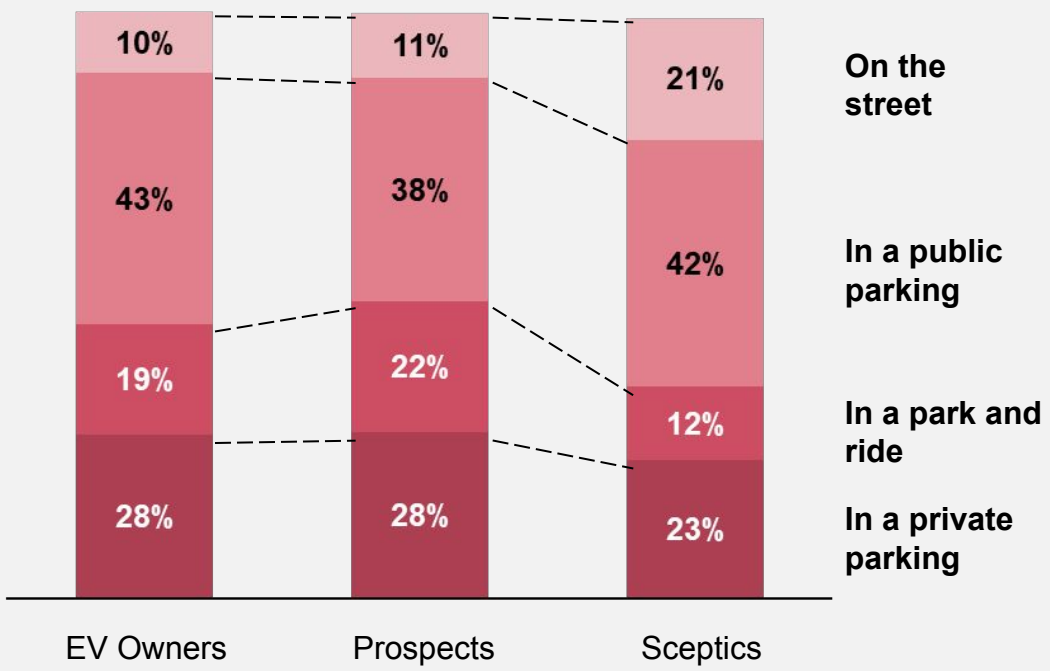
Which of the following means do you use during your free time?

12,816 respondents



Where do you typically park your car when you switch means?

5,772 respondents



Source: Strategy& analysis on feedback from consumer survey

02. Consumer viewpoints

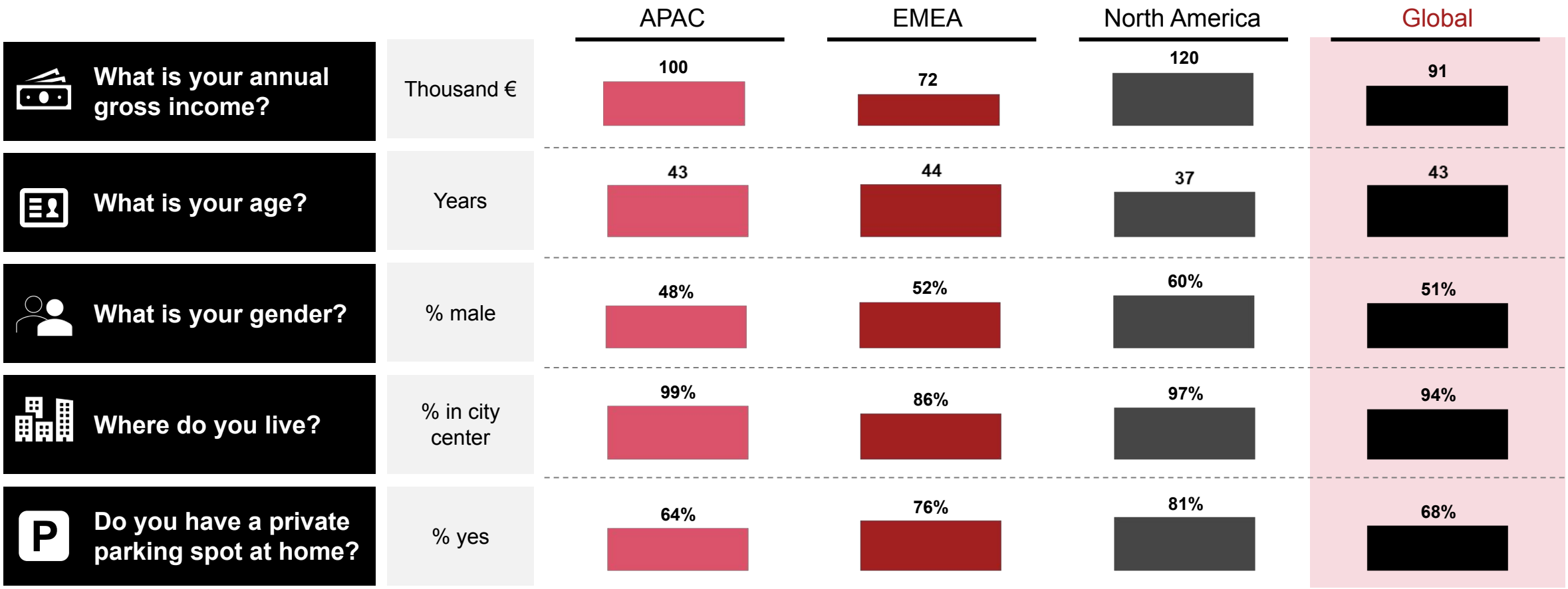
EV Owners

Consumers that already own an Electric Vehicle, either plug-in hybrid or fully electric

EV owners show substantial differences across the globe, highlighting a different maturity in the EV adoption

EV owners – Regional differences

778 respondents

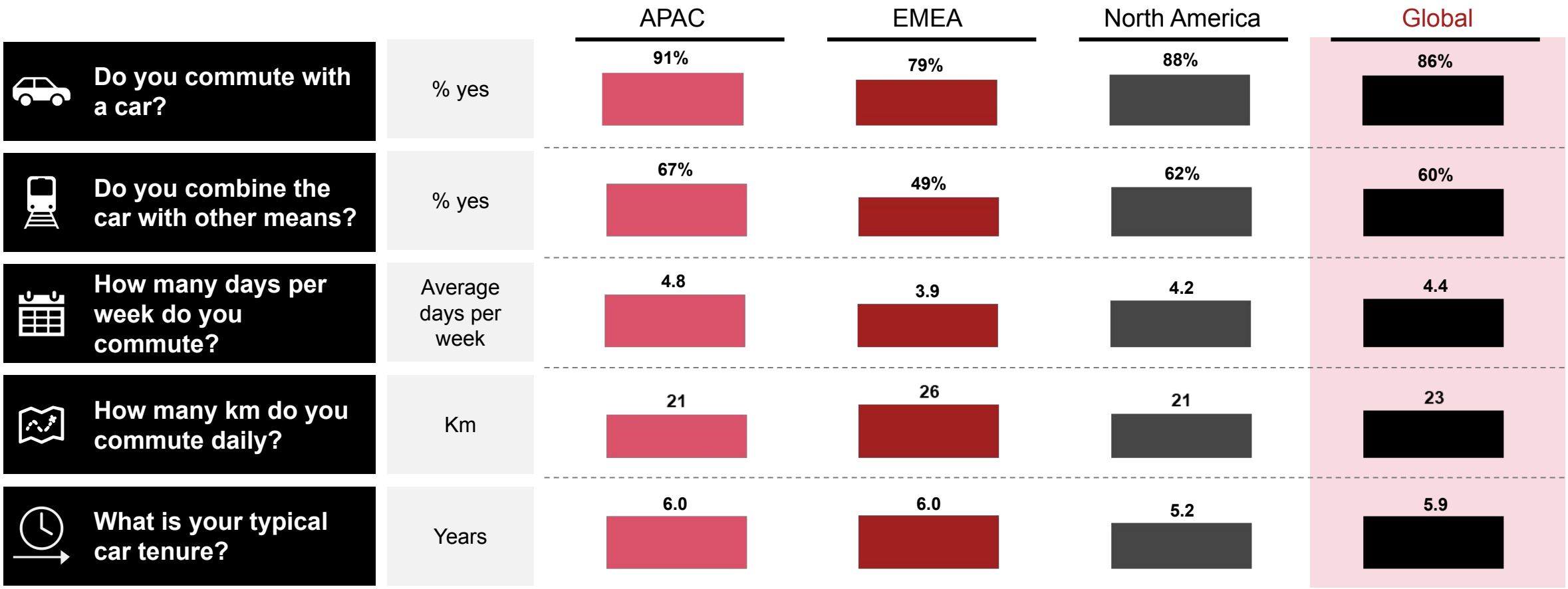


Source: Strategy& analysis on feedback from consumer survey

EV owners show substantial differences across the globe, highlighting a different maturity in the EV adoption

EV owners – Regional differences

778 respondents

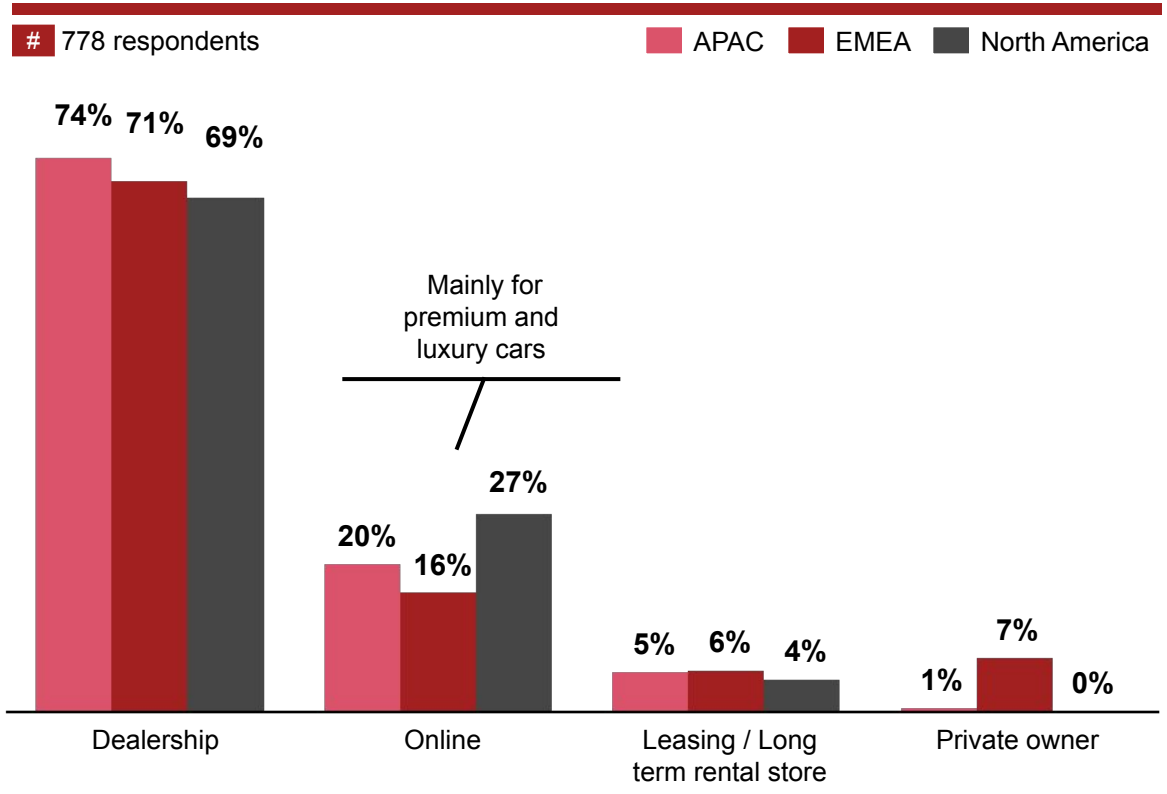


Source: Strategy& analysis on feedback from consumer survey

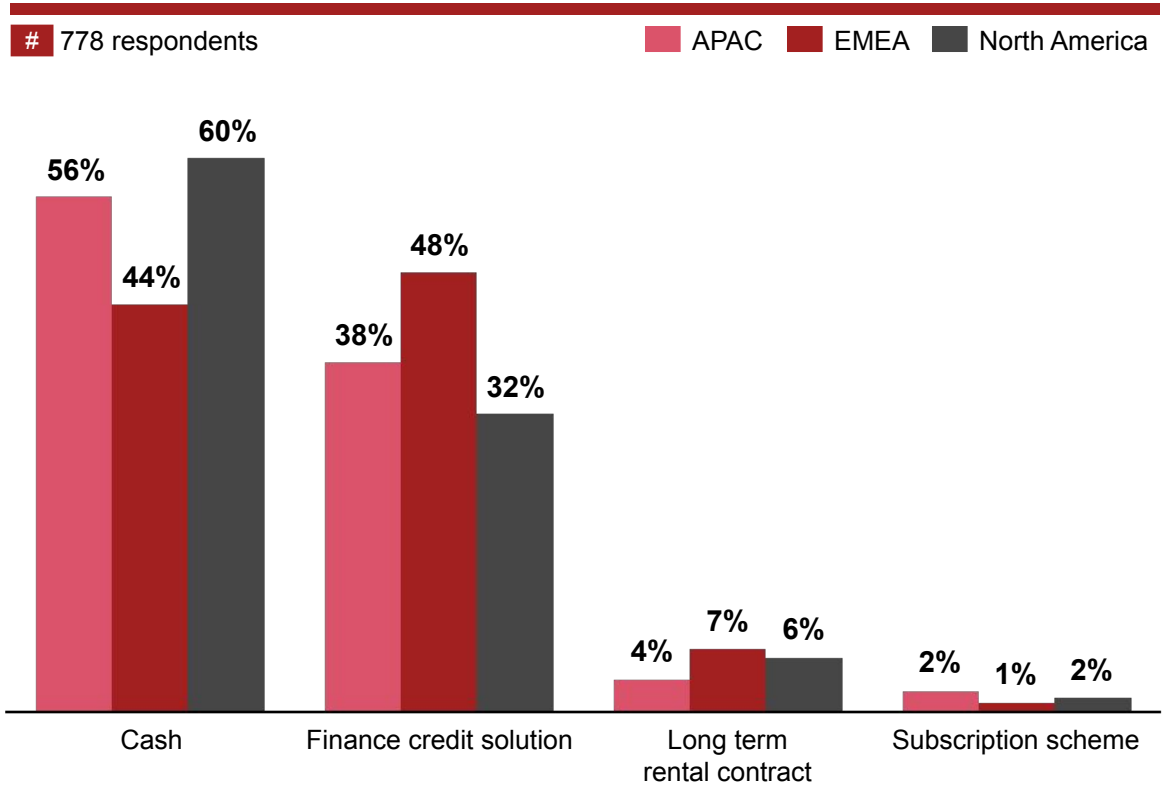
A dealership is the main purchase channel for EVs, with online gaining traction for premium players, particularly in North America

Purchase method

Where did you buy it?



How did you buy it?



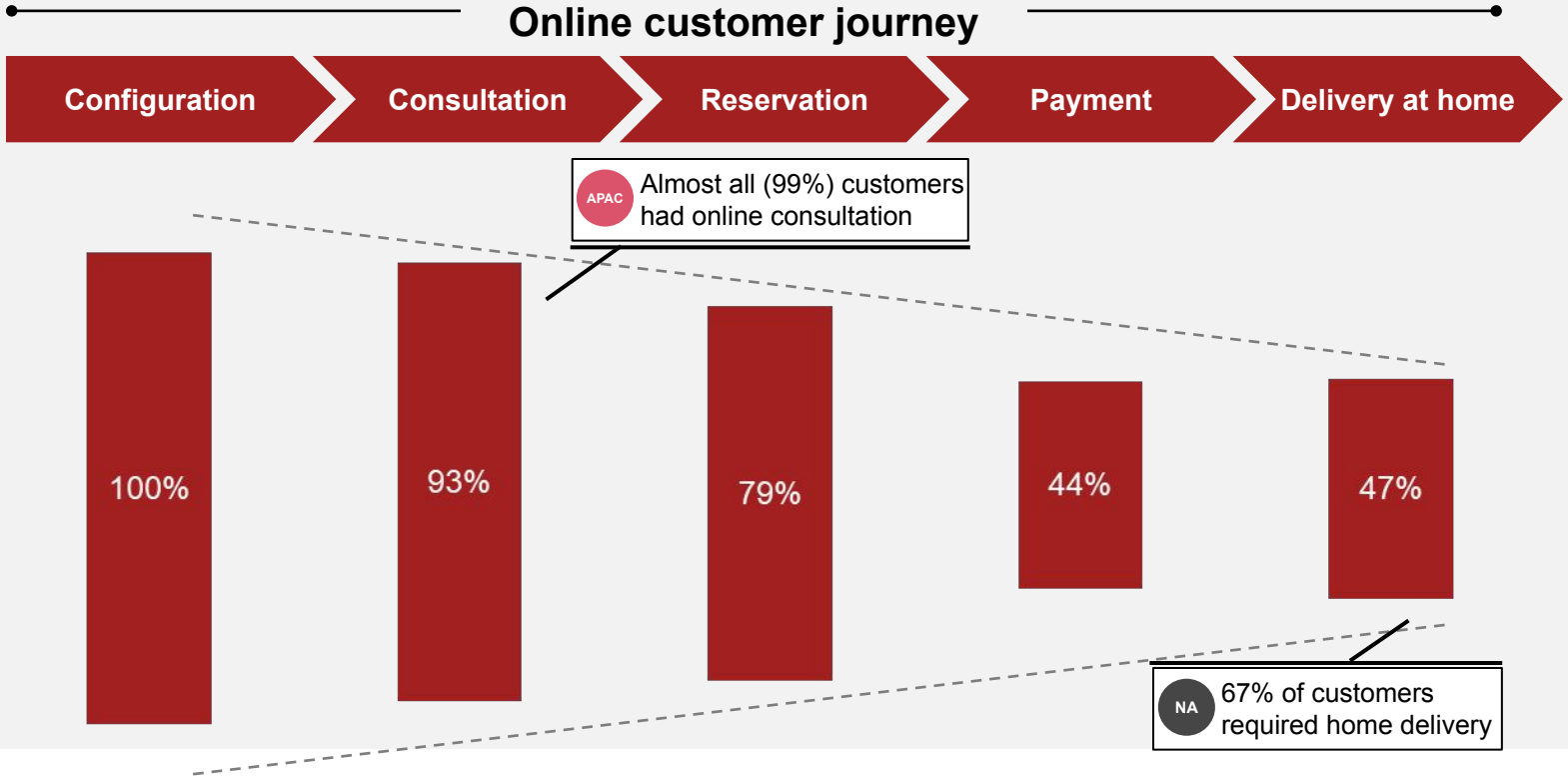
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Online buyers show lower satisfaction than offline ones - except in the APAC region - with online payment representing a key barrier to an end-to-end journey

Online customer journey

Which activities did you perform online?

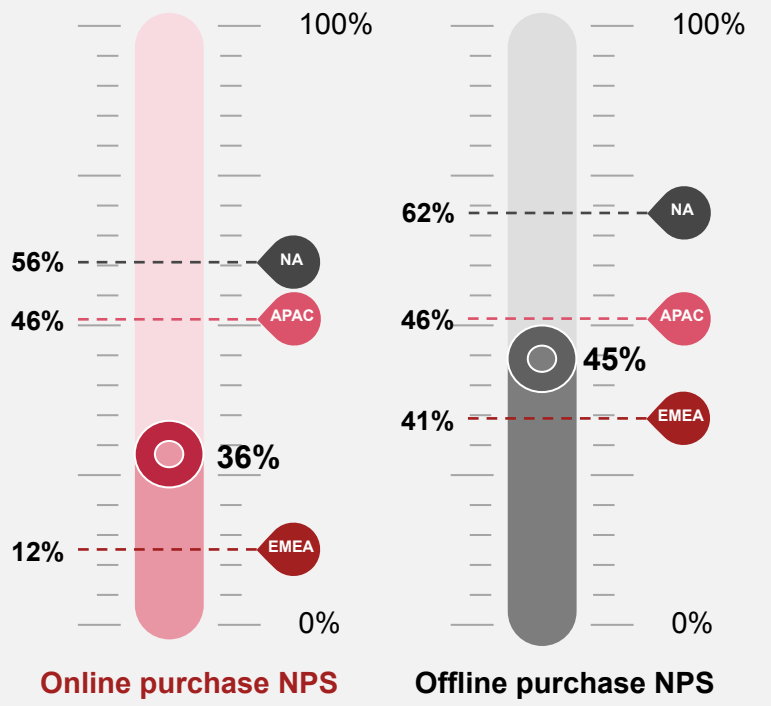
146 respondents – Multiple choice



How satisfied are you with the overall purchasing process?

146 respondents

632 respondents



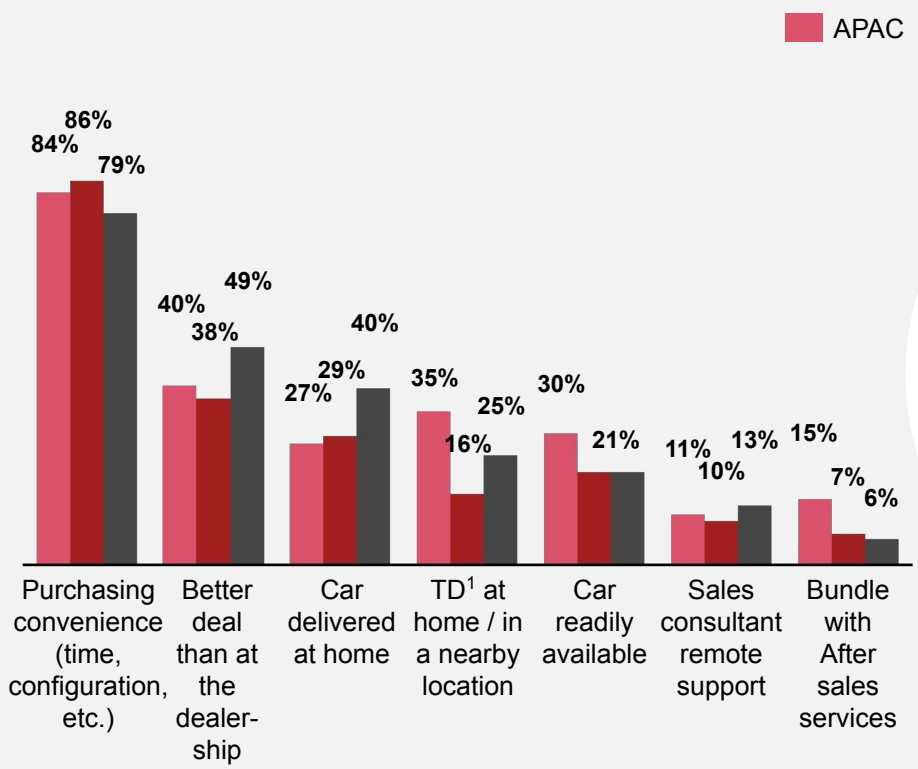
Source: Strategy& analysis on feedback from consumer survey

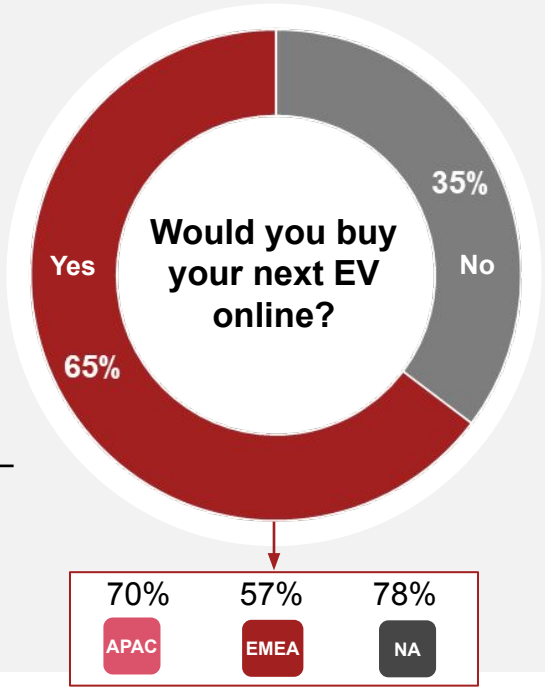
65% of current EV owners, would buy their next car online, driven by convenience, price and a readily available vehicle

Online purchase intention

What are the main reasons to buy an EV online?

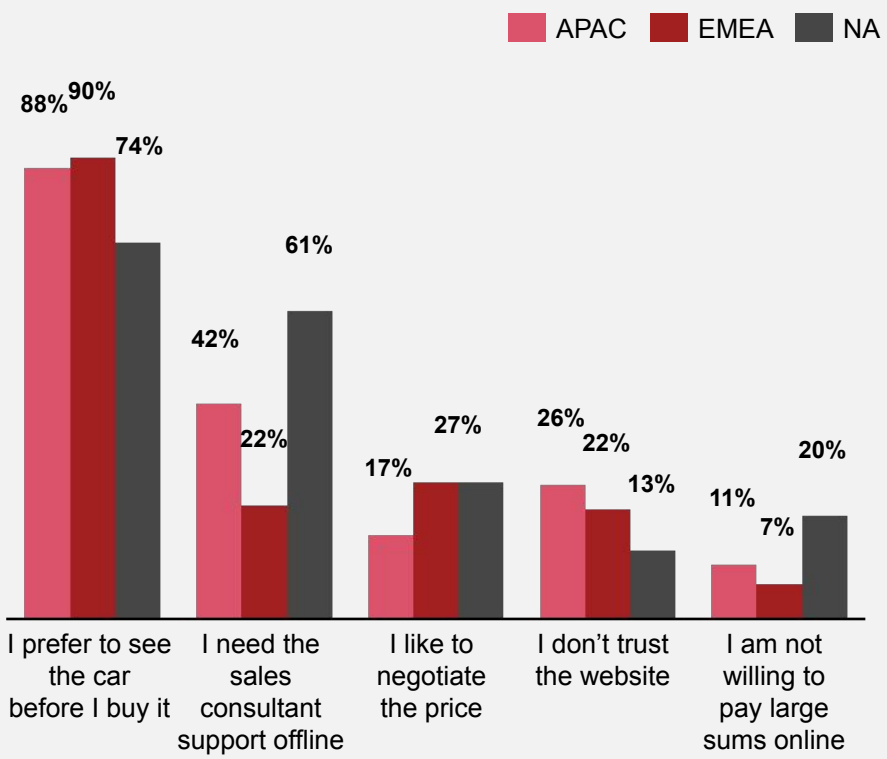
507 respondents – Multiple choice





What are the key barriers not to buy an EV online?

271 respondents – Multiple choice



1) TD: Test Drive
Source: Strategy& analysis on feedback from consumer survey

Word of mouth is the key trigger for EV consideration – the financial offer and driving experience are the fundamental factors for purchase

EV customer journey

How did you begin to consider buying an EV?

778 respondents

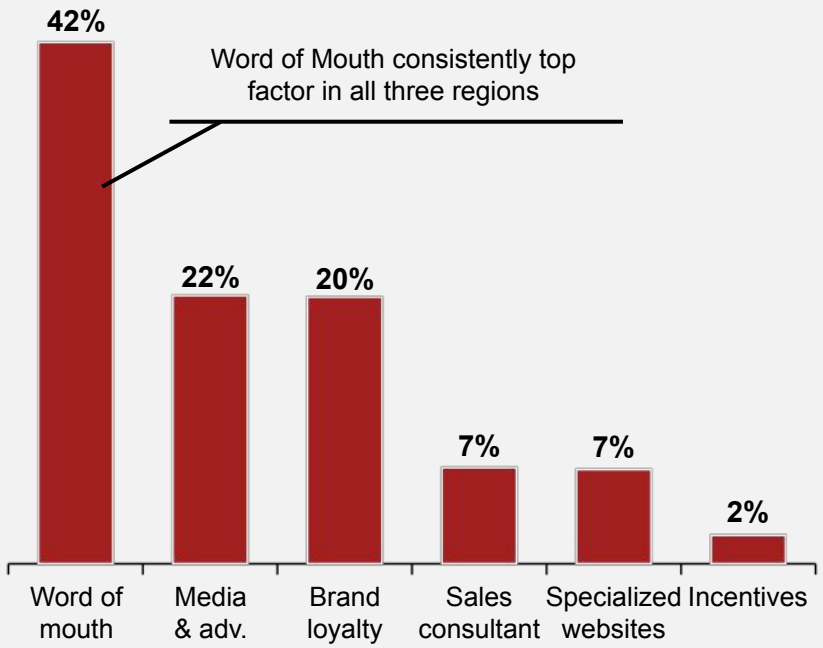
What was the deciding factor that led you buying it?

778 respondents

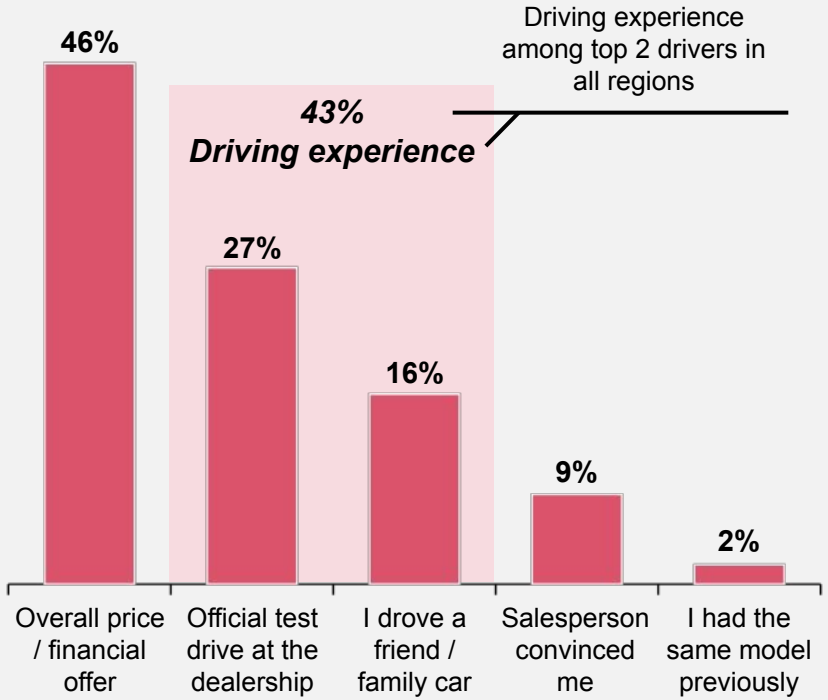
How satisfied were you with the overall purchasing process?

778 respondents

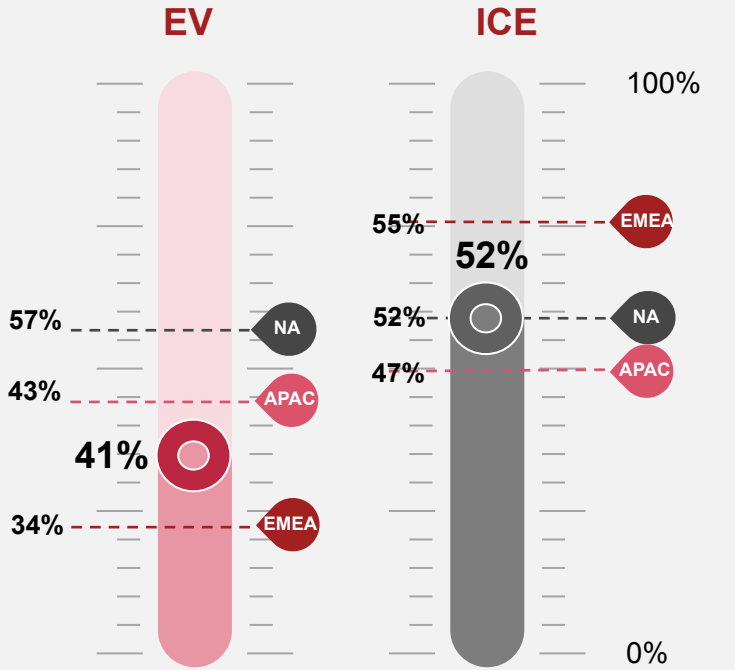
Consideration



Purchase



Loyalty (NPS)

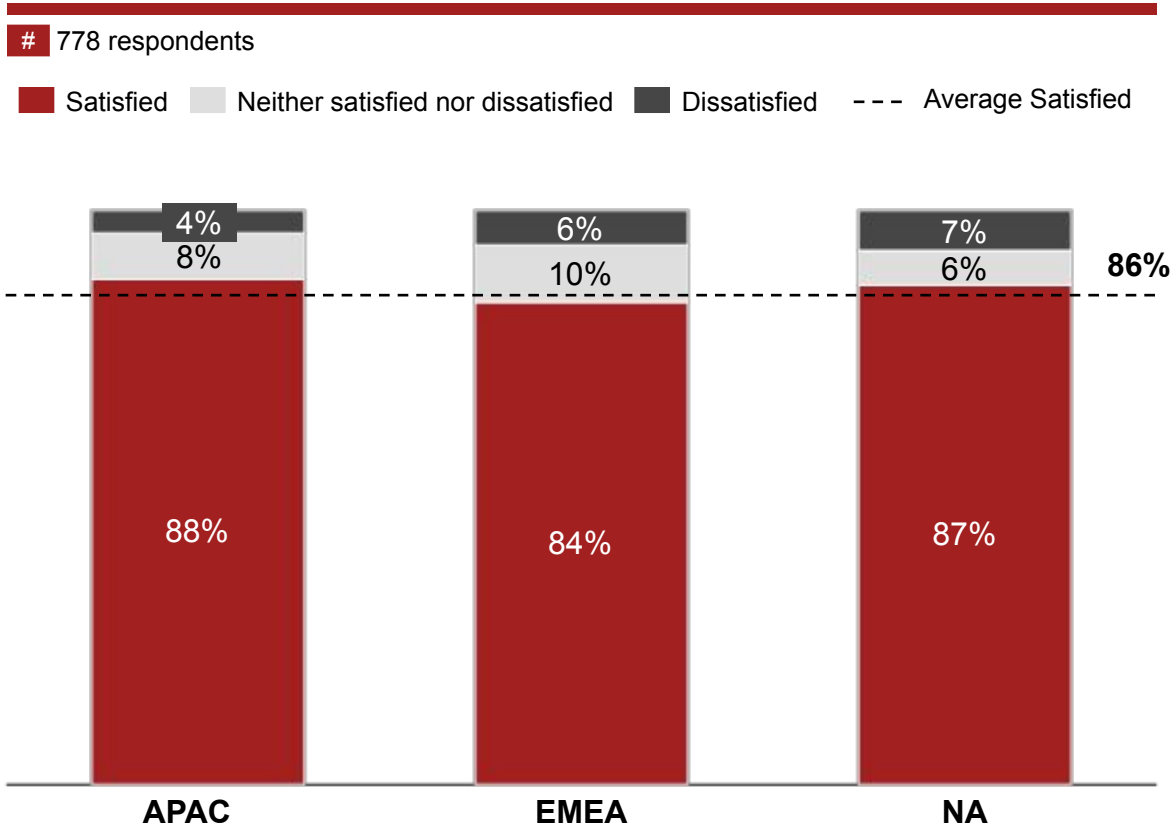


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

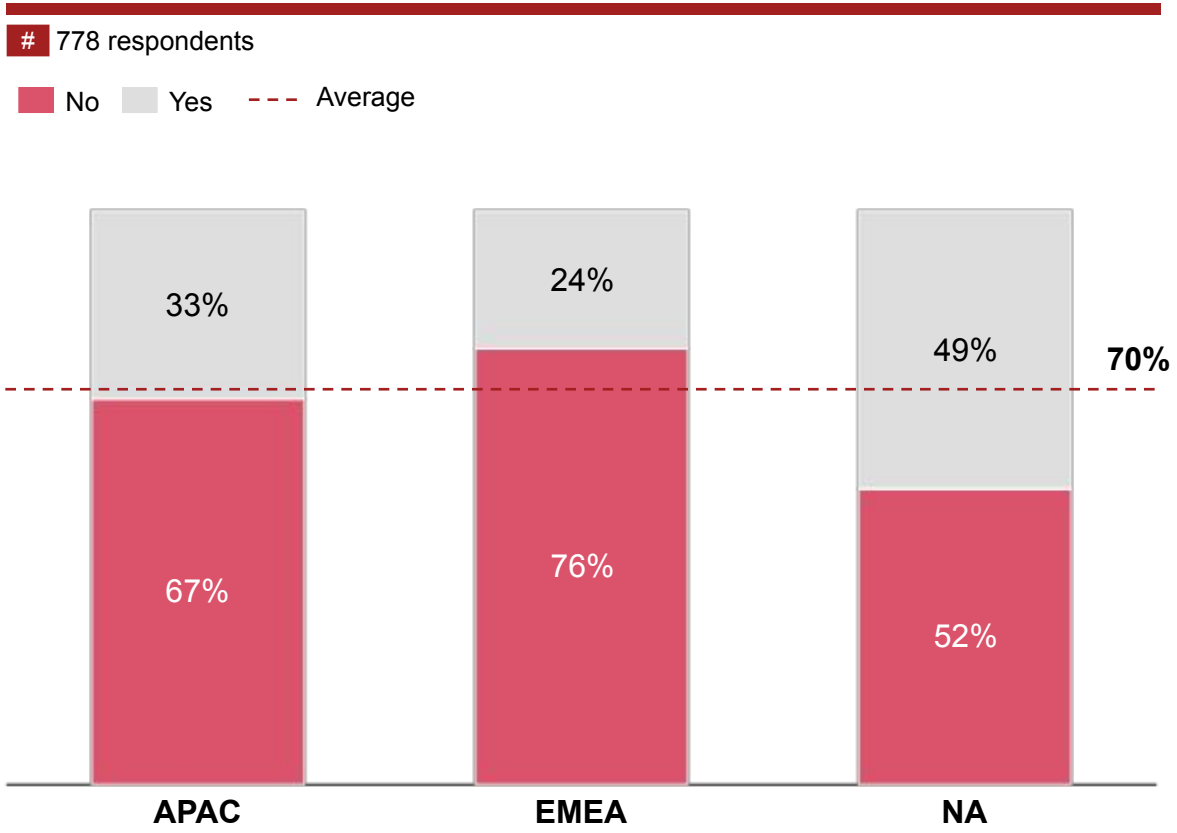
EV owners are mostly satisfied, even if almost half of North American customers would be willing to consider switching back to ICE

Customer satisfaction – Focus on product

How satisfied are you with your current EV?



Would you switch back to ICE?



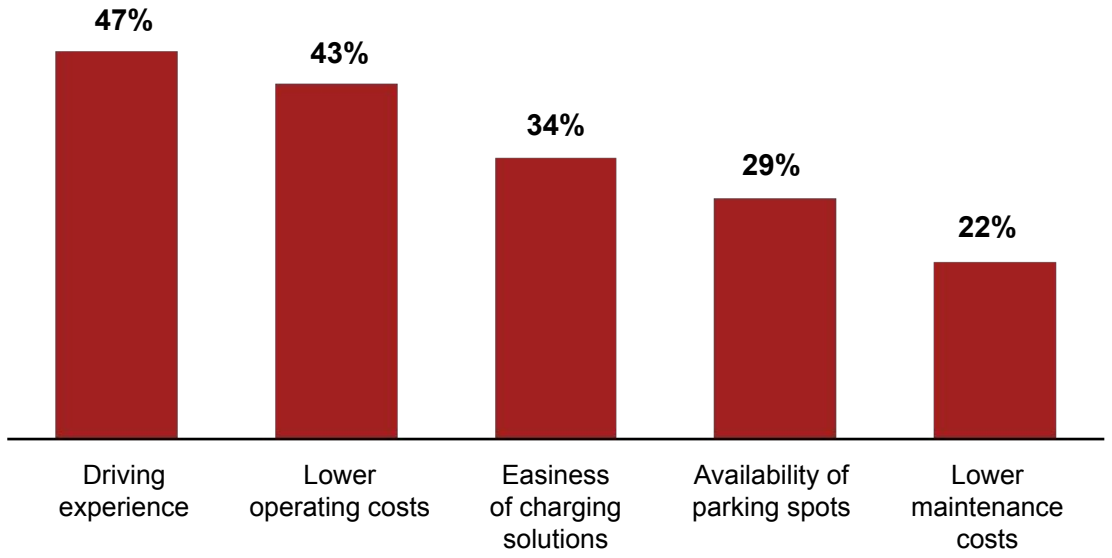
Source: Strategy& analysis on feedback from consumer survey

Driving experience and lower operating costs are the main drivers of EV owners satisfaction, with charging still being an issue

Customer satisfaction – Focus on product

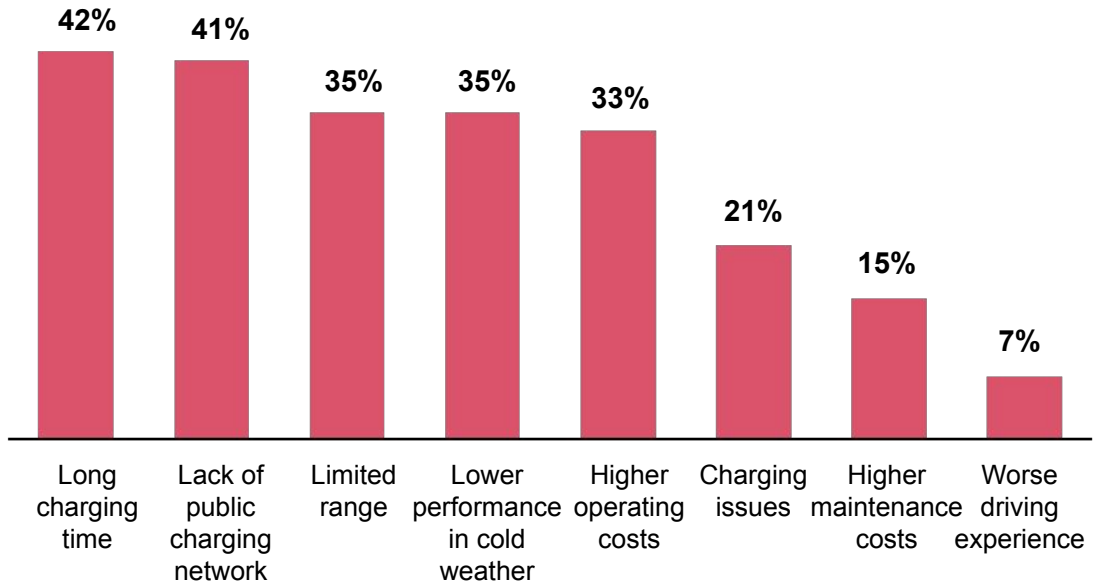
What are the main drivers of your satisfaction?

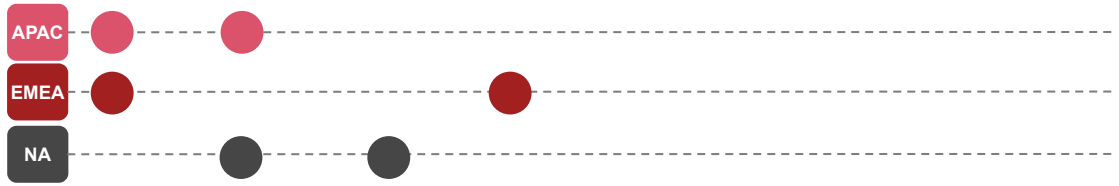
672 respondents – Multiple choice



What are the main issues you are facing with your EV?

106 respondents – Multiple choice





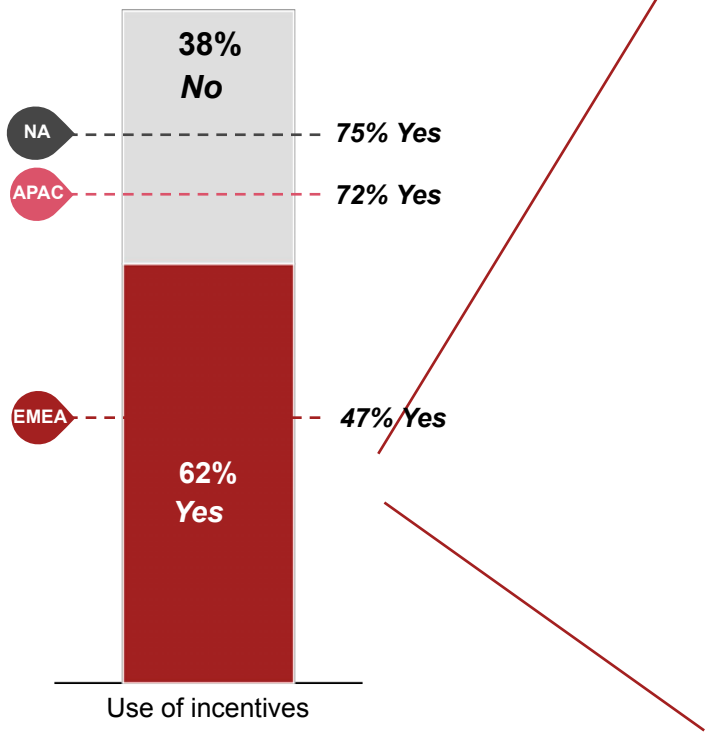
Source: Strategy& analysis on feedback from consumer survey

Majority of EV owners purchased their car by leveraging public incentives, yet 89% would have bought an EV regardless

Purchase incentives

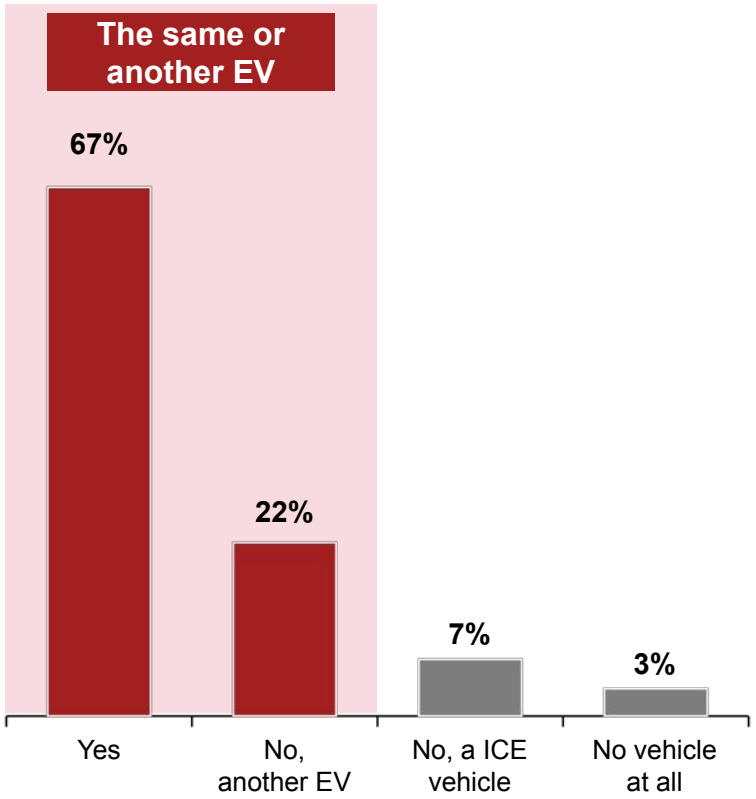
Did you make use of economic incentives to purchase the EV?

778 respondents



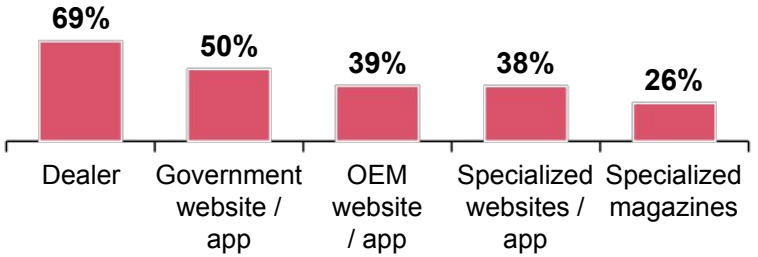
Would you have bought it without incentives / subsidies?

485 respondents



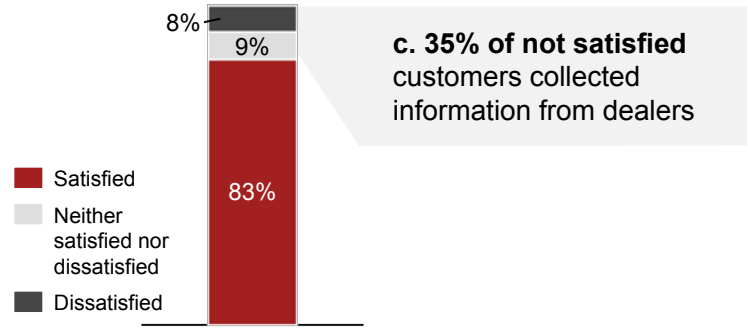
How did you become aware of the incentives that were available?

485 respondents – Multiple choice



Are you satisfied by the information collected regarding incentives?

485 respondents



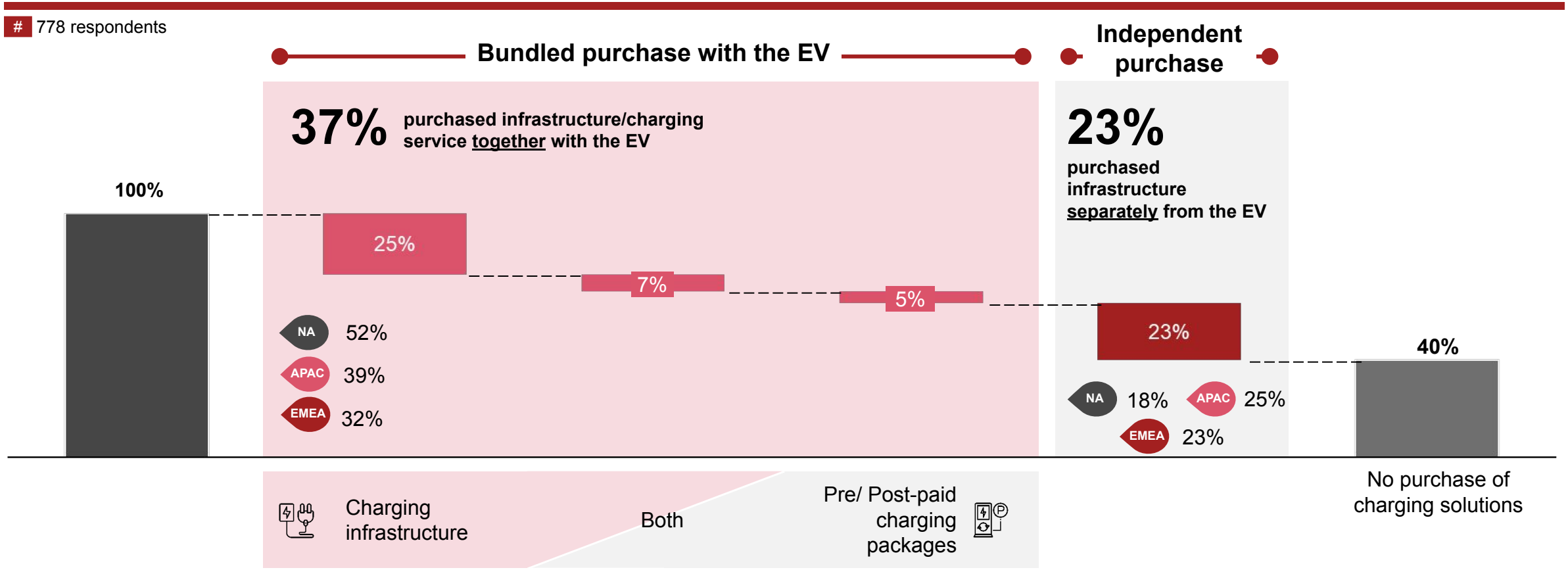
c. 35% of not satisfied customers collected information from dealers

Source: Strategy& analysis on feedback from consumer survey

37% of EV owners purchased a charging solutions bundled with their car, with an additional 23% purchasing it separately

Charging solutions

What additional charging infrastructure / services did you buy together with your EV?



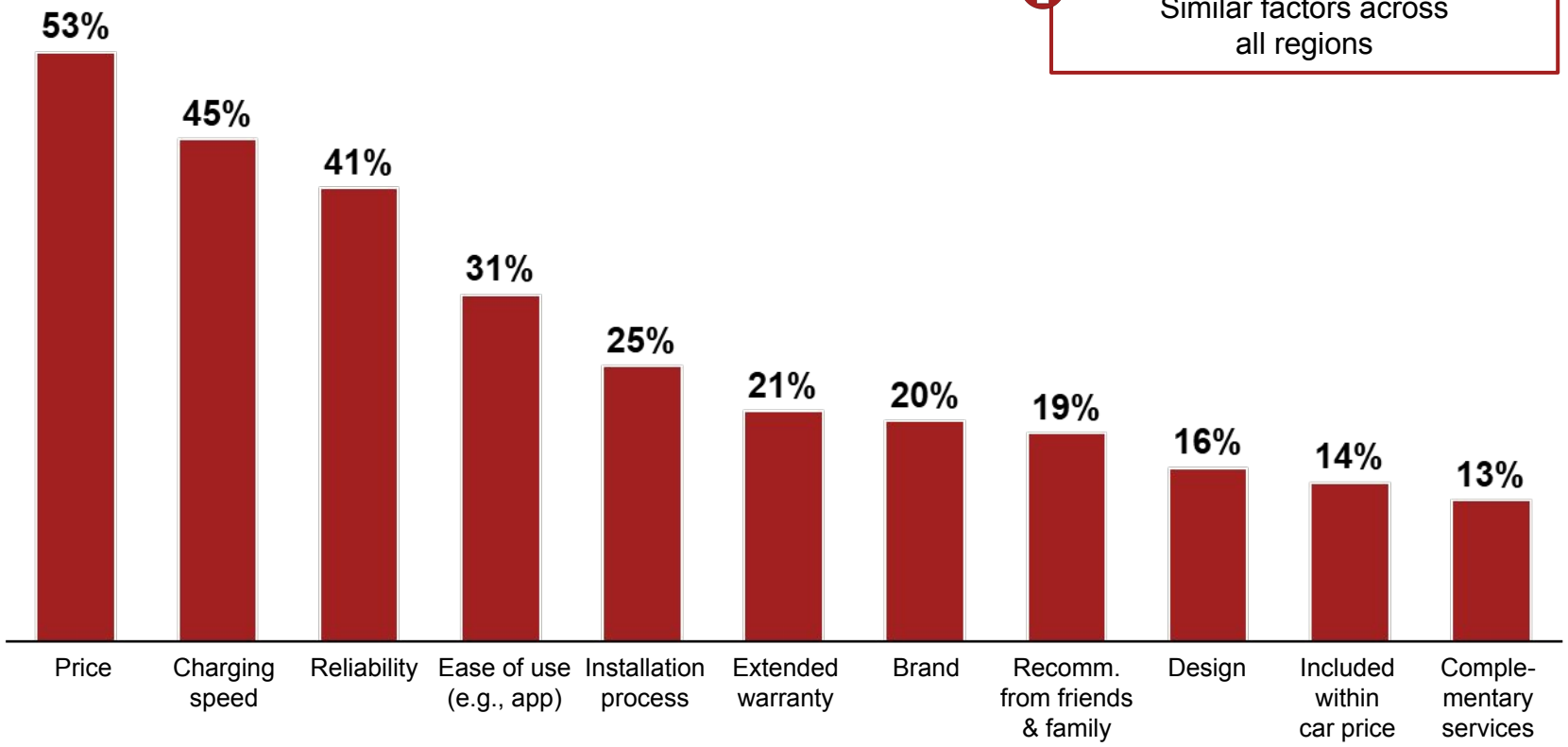
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Price, charging speed and reliability are the key purchasing criteria when buying private charging infrastructure

Private charging – Driving factors

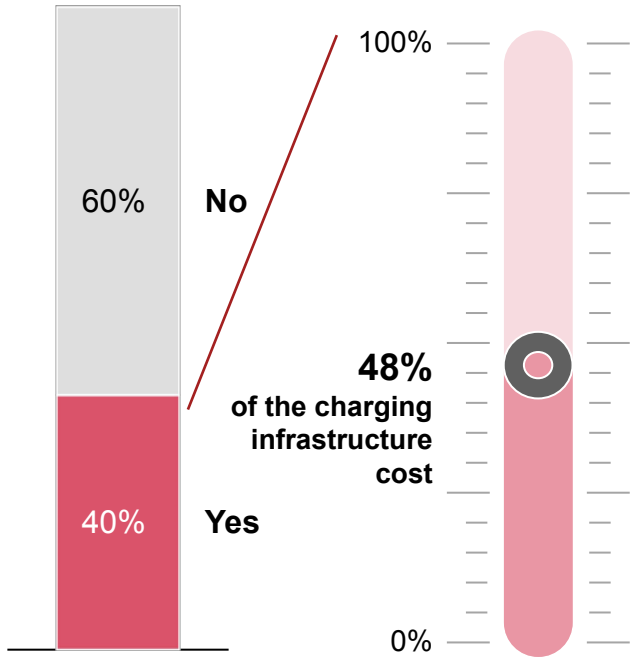
What are the key driving factors when buying the charging infrastructure?

447 respondents – Multiple choice



Did you use any incentive for the charging infrastructure?

447 respondents



Source: Strategy& analysis on feedback from consumer survey

The private charging installation process is a key driver of customer satisfaction, with customers less satisfied when it is left to 3rd parties

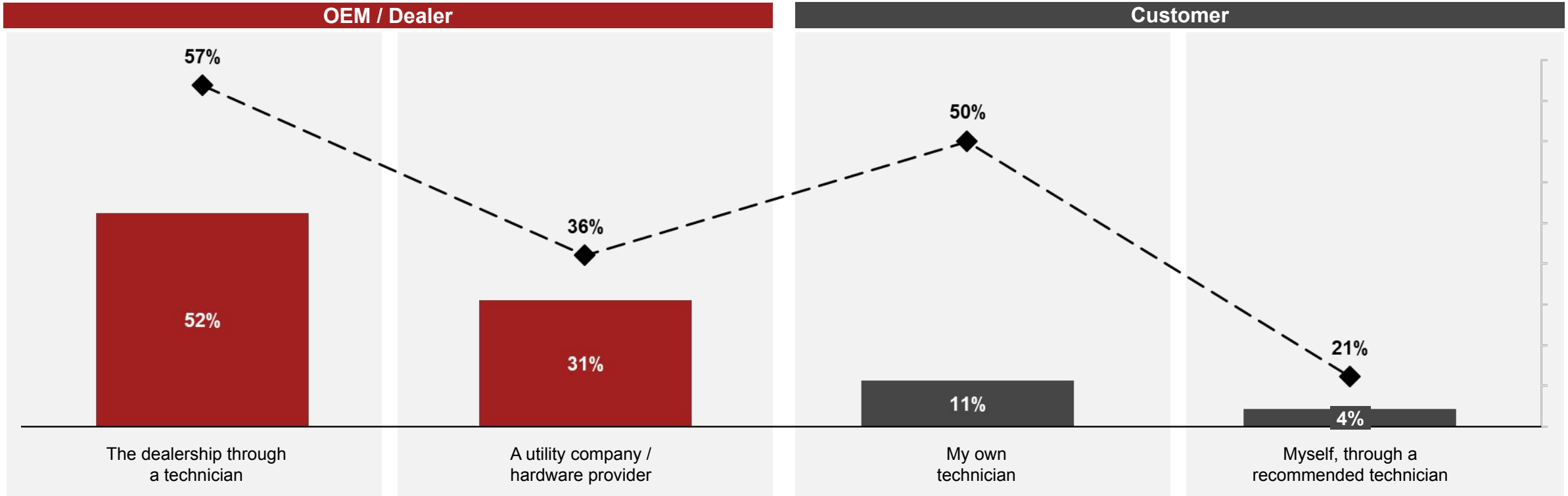
Private charging – Customer satisfaction with installation

Similar factors across all regions

Who was in charge of installing the charging infrastructure?

447 respondents

% NPS Score



Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

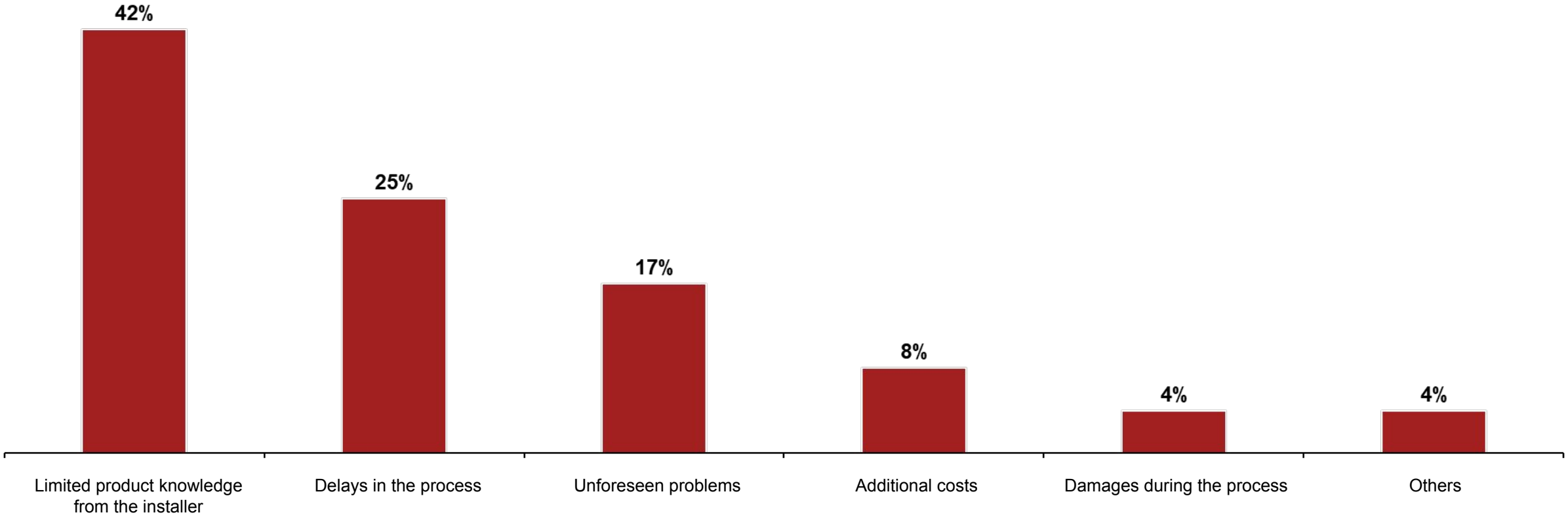
Unprepared installers and lack of installation process management are the key reasons for customers dissatisfaction

Private charging – Installation issues

Which are the key issues you faced during the installation process?

Similar factors across all regions

84 respondents (detractors)



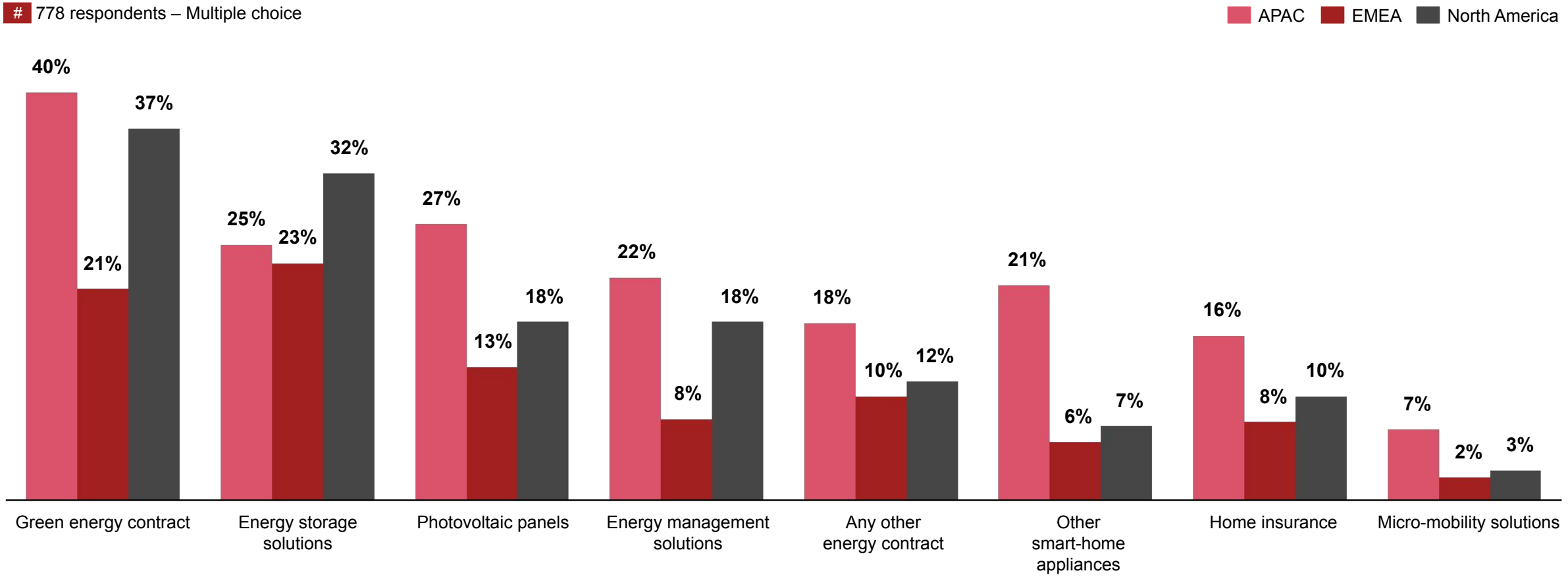
Source: Strategy& analysis on feedback from consumer survey

EV owners showed high level of interest in purchasing additional products and services, in particular green energy contracts

Additional products & services

What other EV-related products did you purchase recently?

778 respondents – Multiple choice

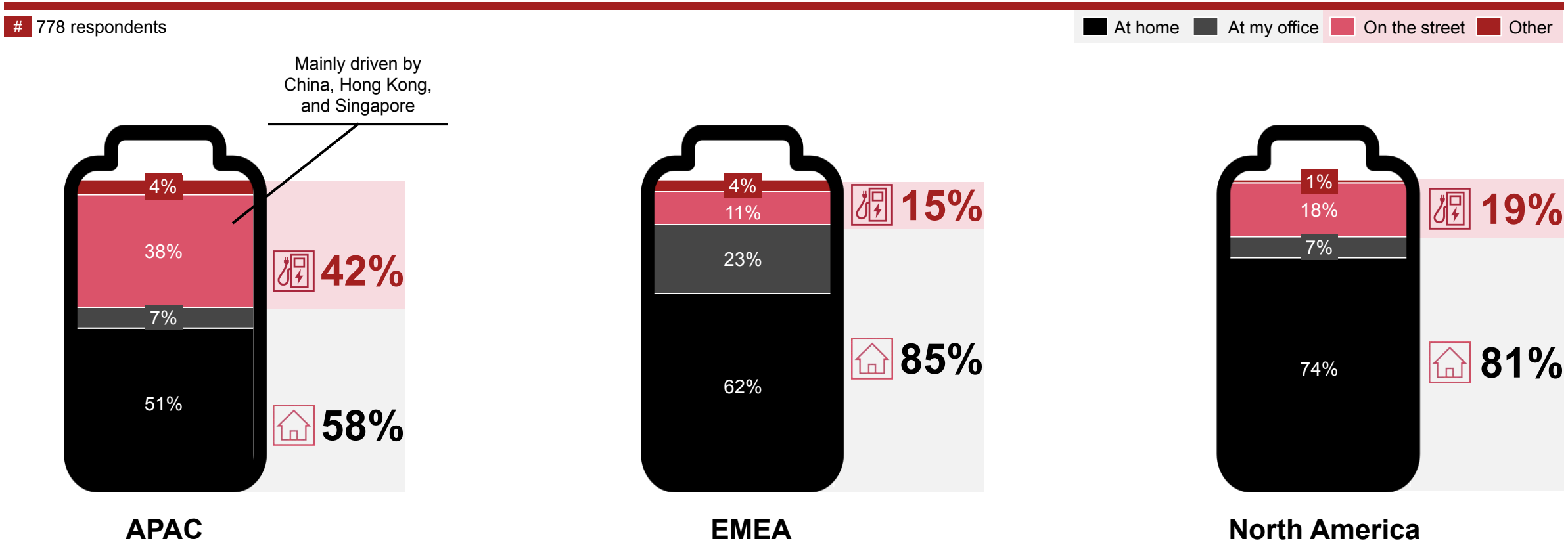


Source: Strategy& analysis on feedback from consumer survey

EV owners charge their vehicle mostly at home, with APAC being the region in which on-the-street-charging has been heavily adopted

Charging preferences

Which is the primary location where you charge your EV?

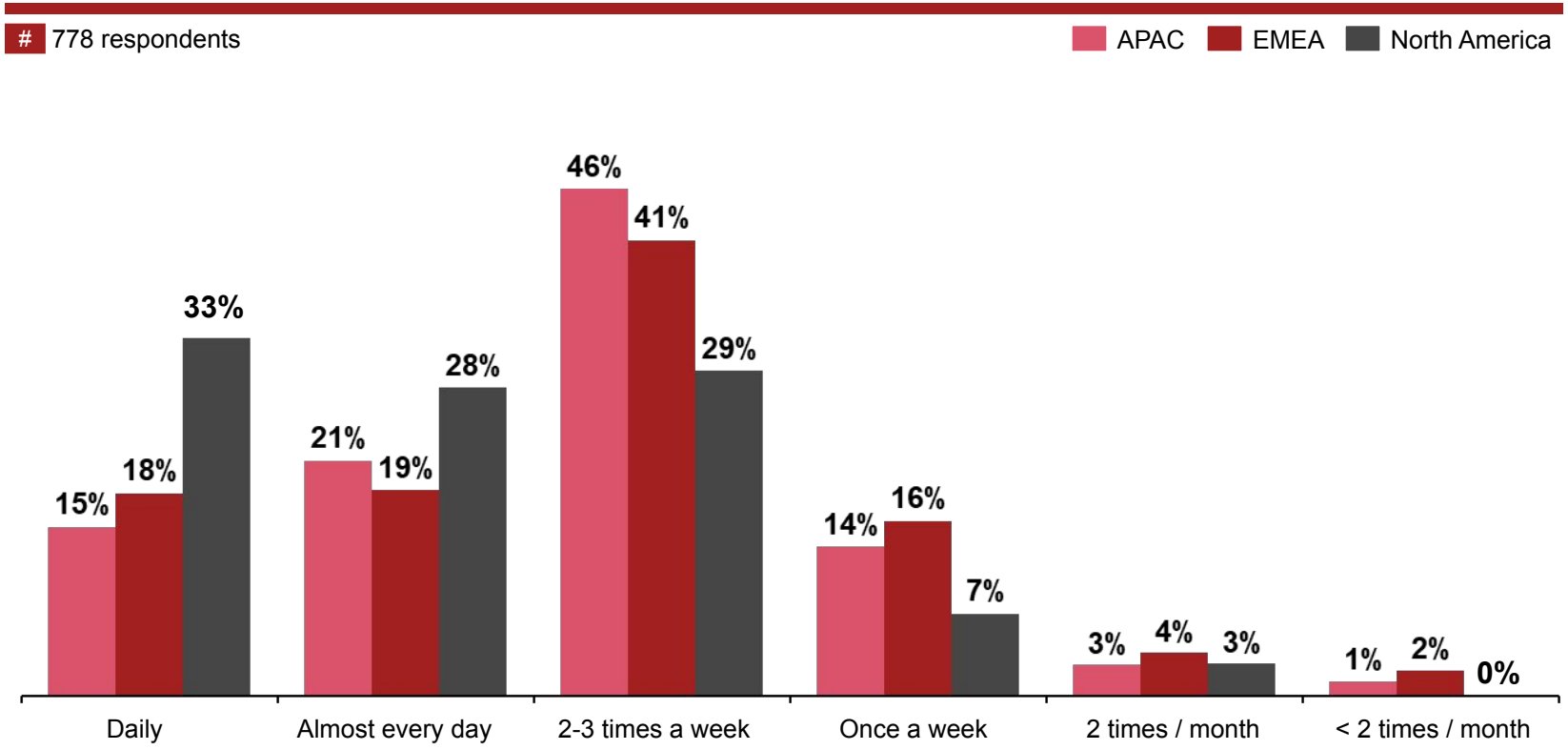


Note: 1) Other includes at shopping malls, supermarkets, and restaurants
Source: Strategy& analysis on feedback from consumer survey

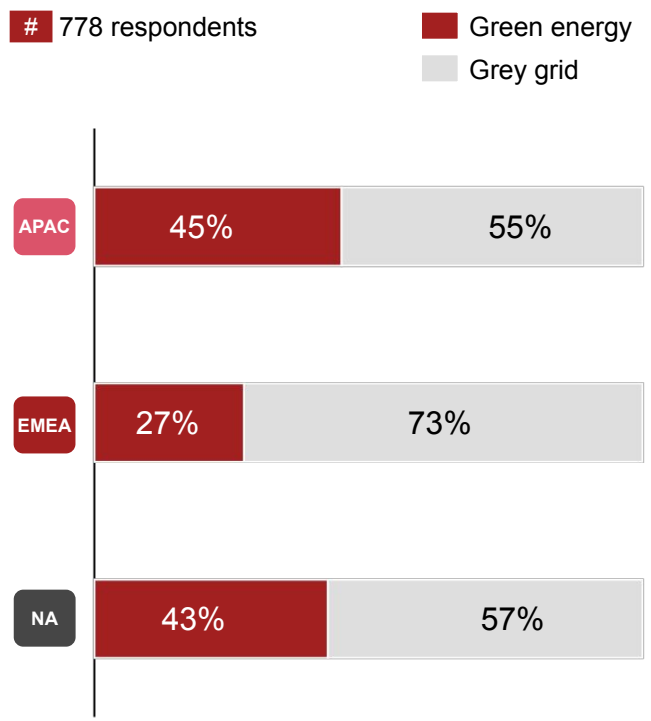
EV owners charge their vehicle mostly two-to-three times per week, predominantly using grey energy

Charging preferences

How often do you charge your EV?



Which energy source do you use at home?



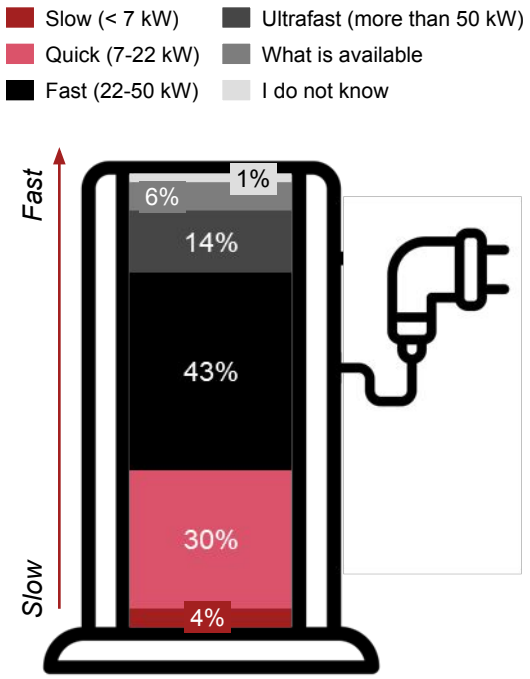
Source: Strategy& analysis on feedback from consumer survey

EV owners are loyal to their charging provider, driven by the location closeness and tariff - subscription plans still show limited uptake

Public charging

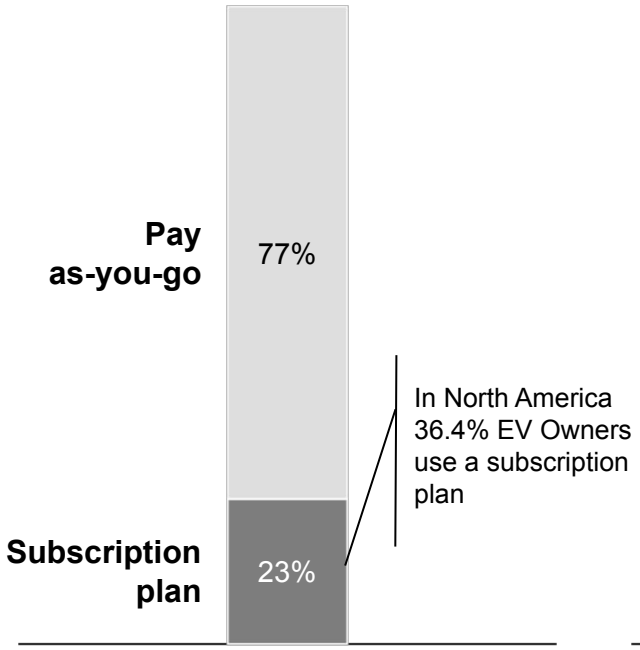
Which charging power do you typically use?

435 respondents



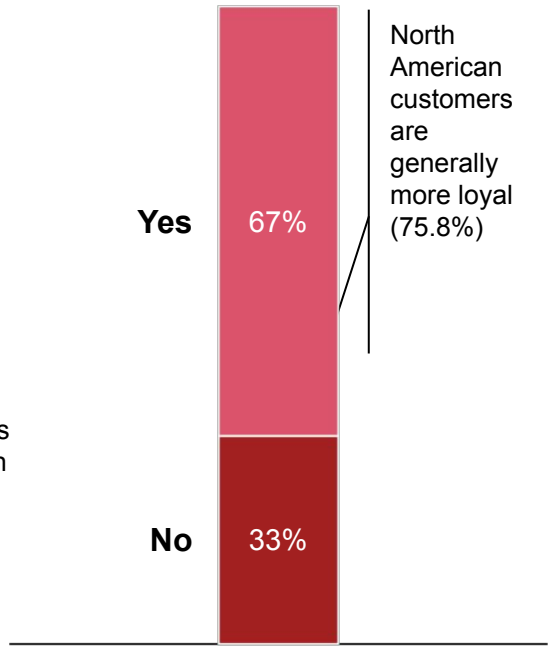
Which tariff do you use?

435 respondents



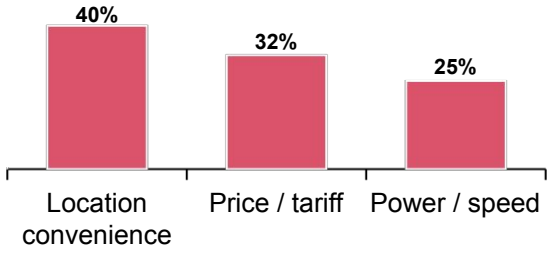
Do you always use the same charging provider on-the-go?

435 respondents



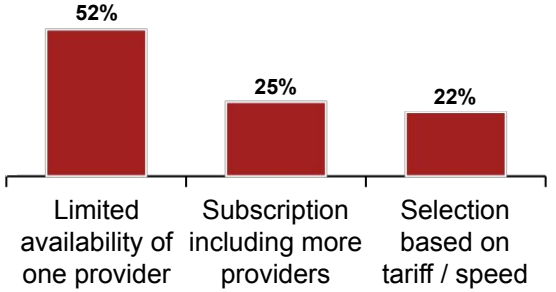
What are the top 3 reasons for choosing the same provider?

293 respondents – Multiple choice



What are the top 3 reasons for using different providers?

142 respondents – Multiple choice

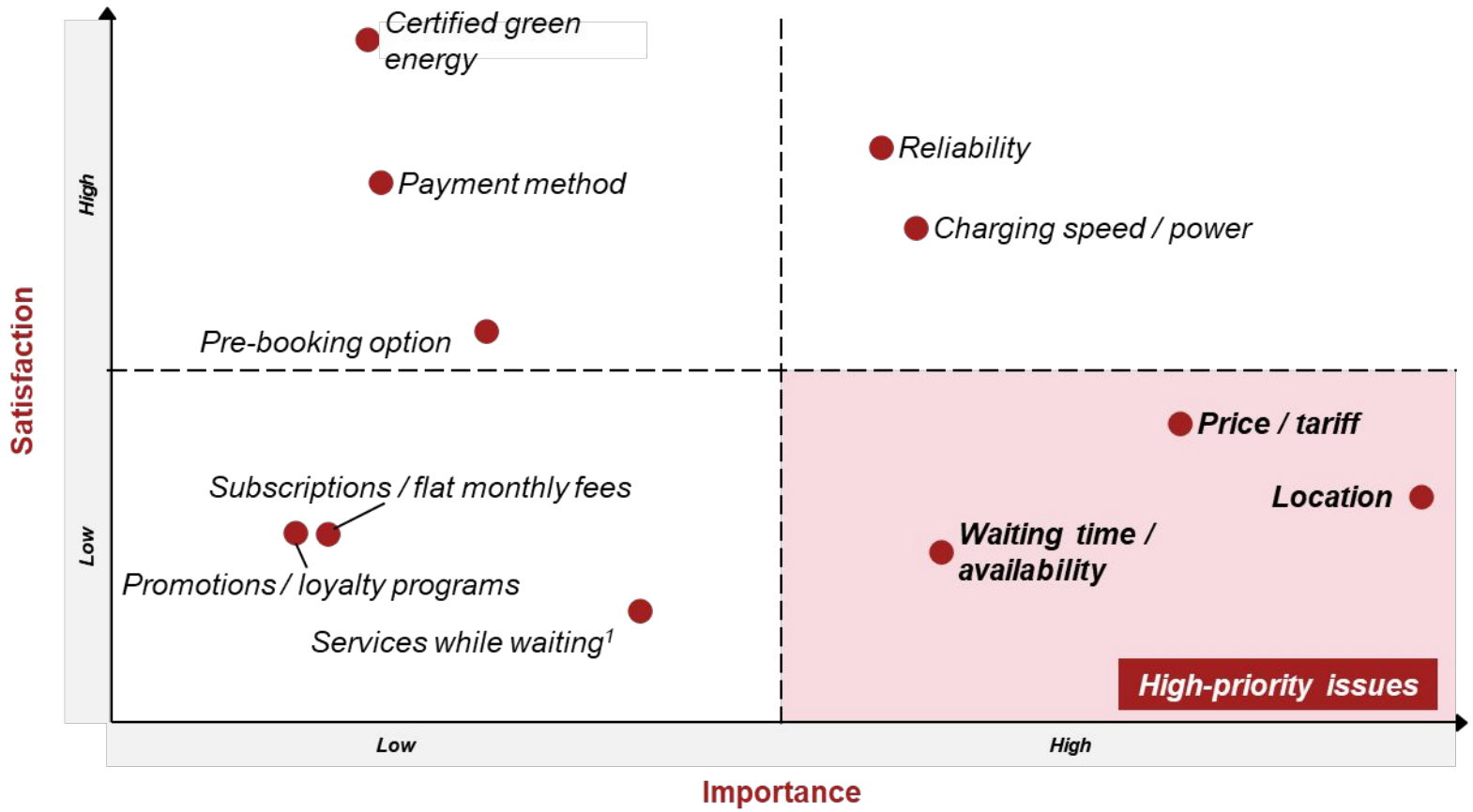


Source: Strategy& analysis on feedback from consumer survey

Charging location and availability are a key areas of dissatisfaction for EV owners

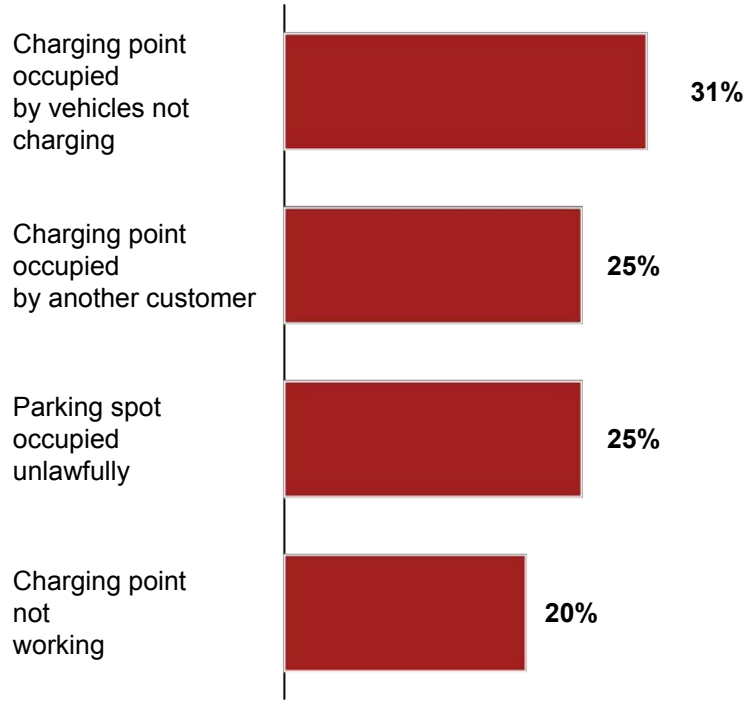
Public charging – Satisfaction

435 respondents – Multiple choice



What are the main reasons for dissatisfaction with availability?

67 respondents

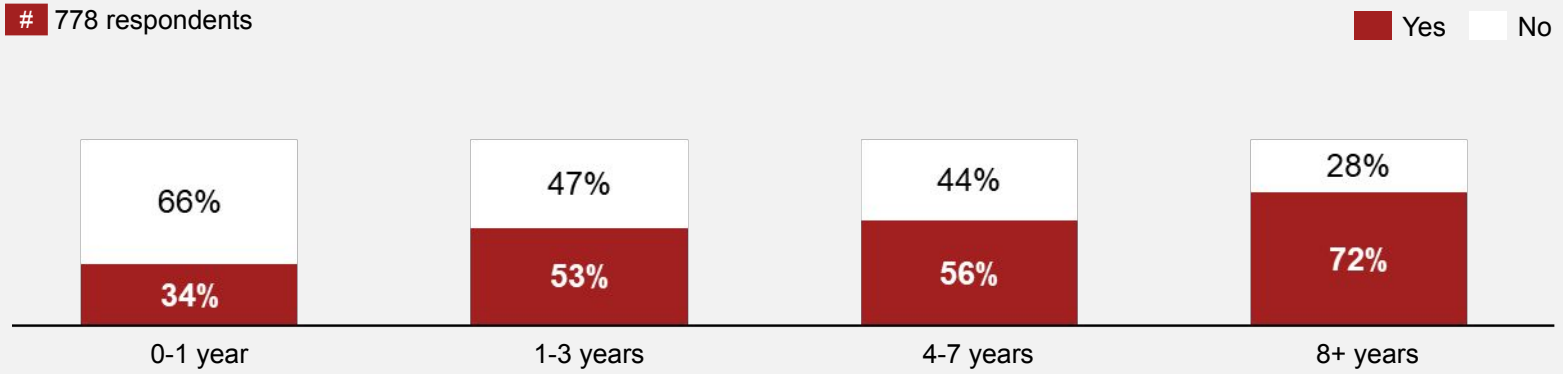


1) Services such as restaurants, shops, vending machines and other services located nearby the charging station
Source: Strategy& analysis on feedback from consumer survey

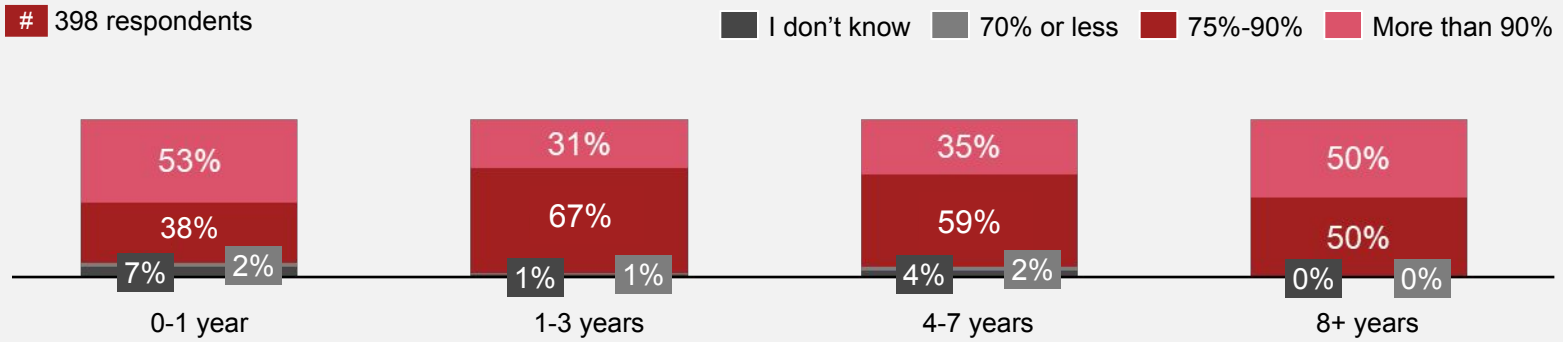
EV owners perceive a reduction in their EV range due to car age or during cold weather driving

EV range

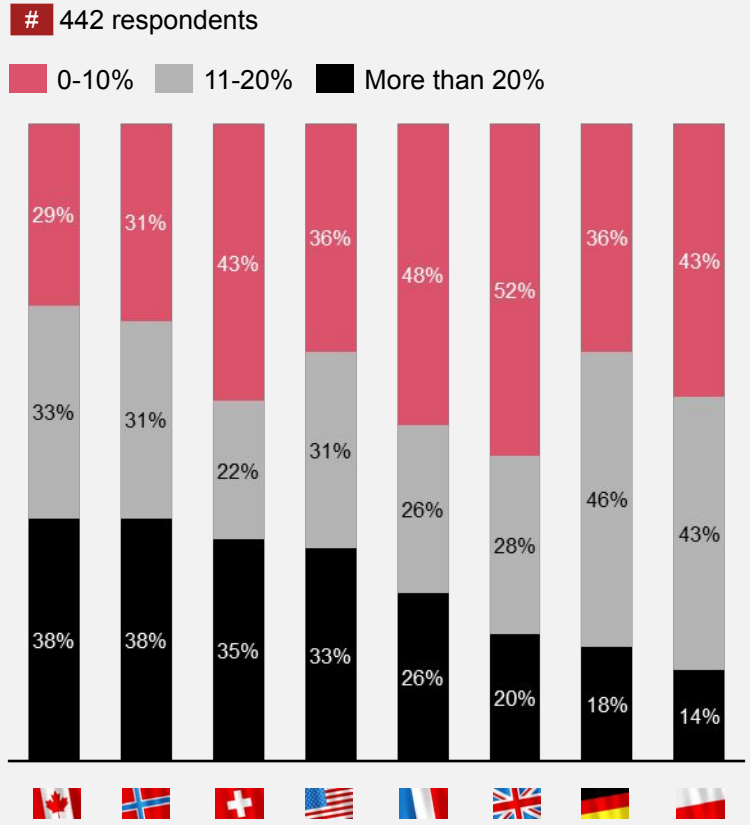
Do you see a reduction in battery duration compared to when the car was new? (In relation to car age)



What is the current State of Health of your battery?



Do you experience any range reduction in cold weather?



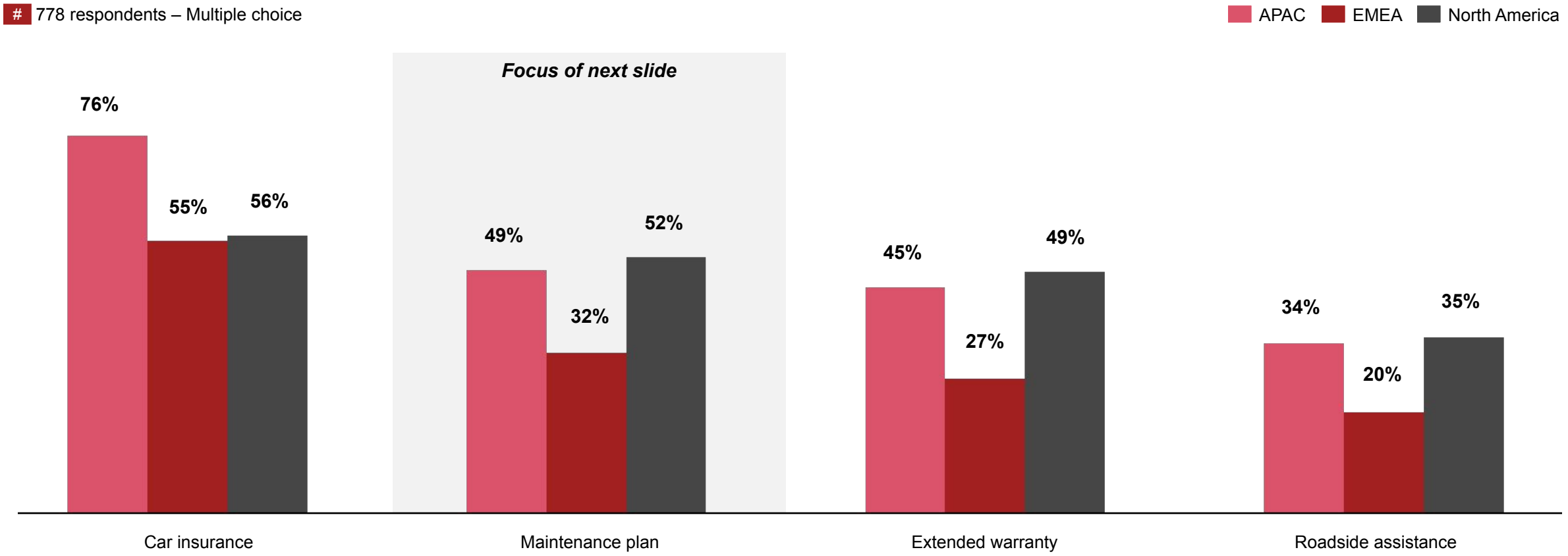
Source: Strategy& analysis on feedback from consumer survey

EV owners declare interest for *peace-of-mind solutions*, especially car insurance and maintenance plans

Additional products & services – Focus on car-related services

Which of the following services did you buy together with your car?

778 respondents – Multiple choice



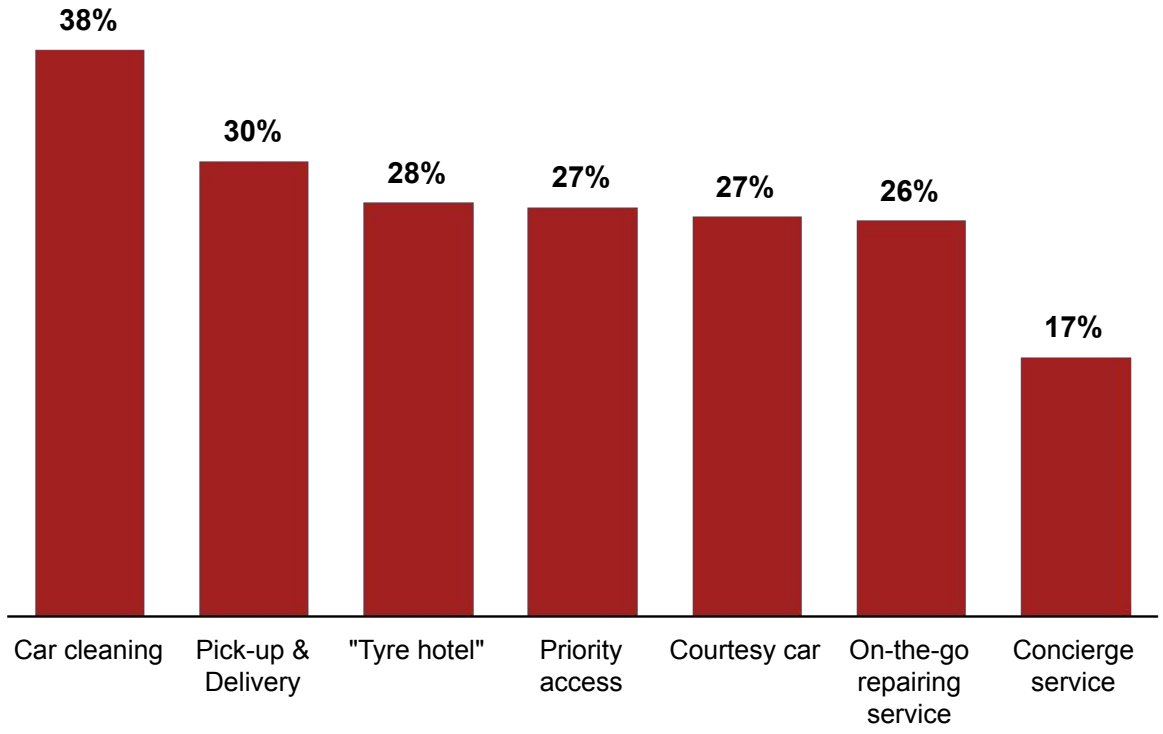
Source: Strategy& analysis on feedback from consumer survey

EV owners show a high interest in bundling a maintenance plan with their EV, complementing it with *premium* services

Additional products & services – Focus on maintenance plan

Which of the following services would you like to have as part of your ordinary maintenance plan?

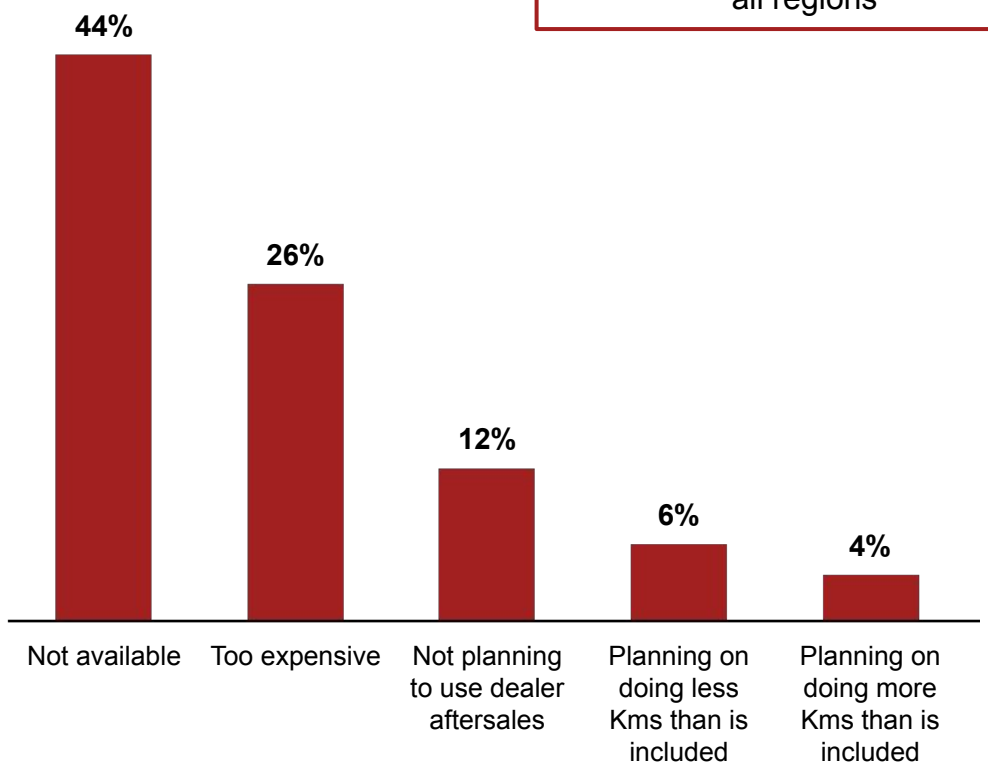
778 respondents – Multiple choice



Which is the main reason why you did not include any ordinary maintenance service?

448 respondents

Similar factors across all regions

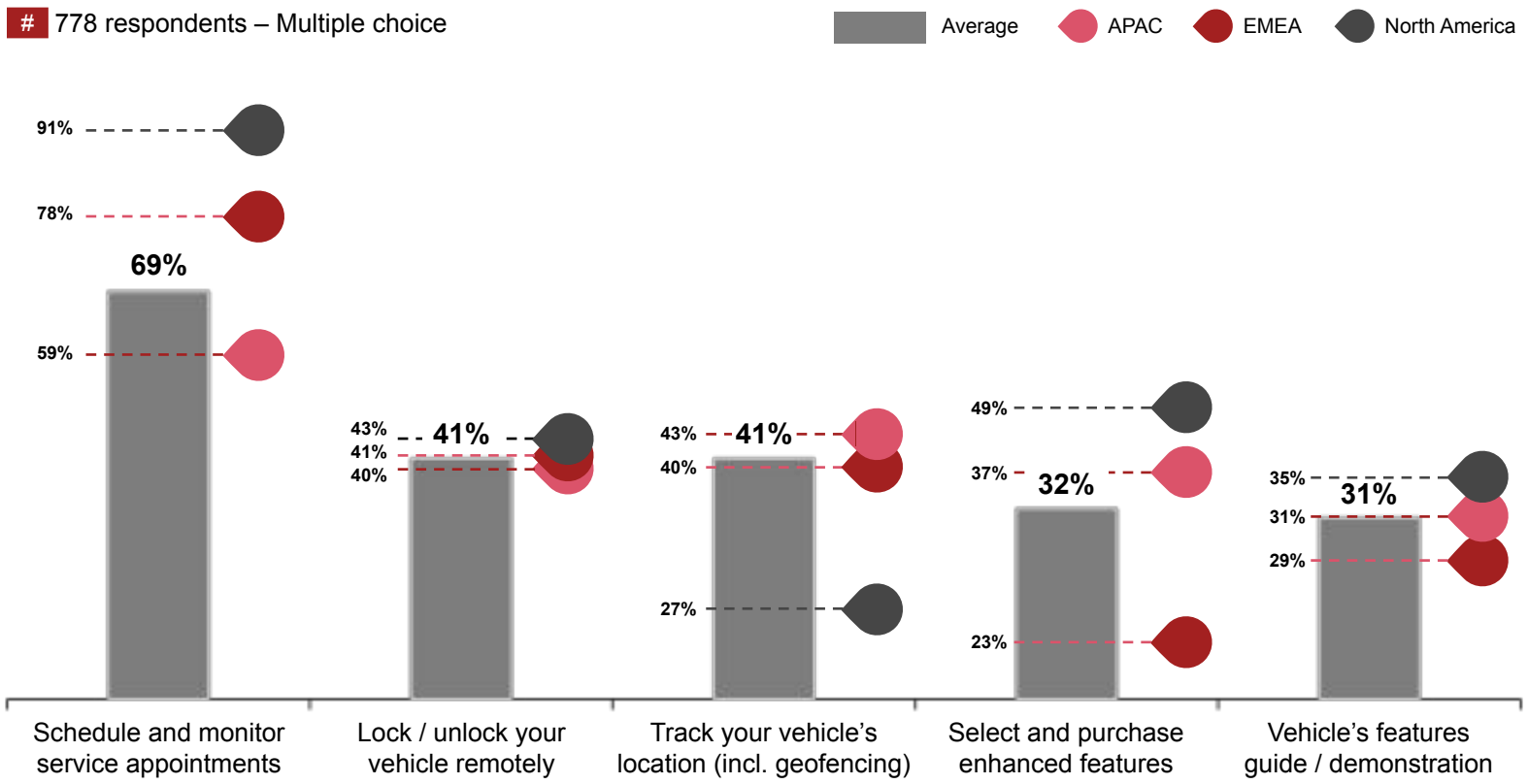


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

OEM car apps are seen as useful tools to manage the car lifecycle, schedule service appointments and manage EVs remotely

Digital app

Which are the top 5 services do you use / would you like to have in your car app?



Other services of interest

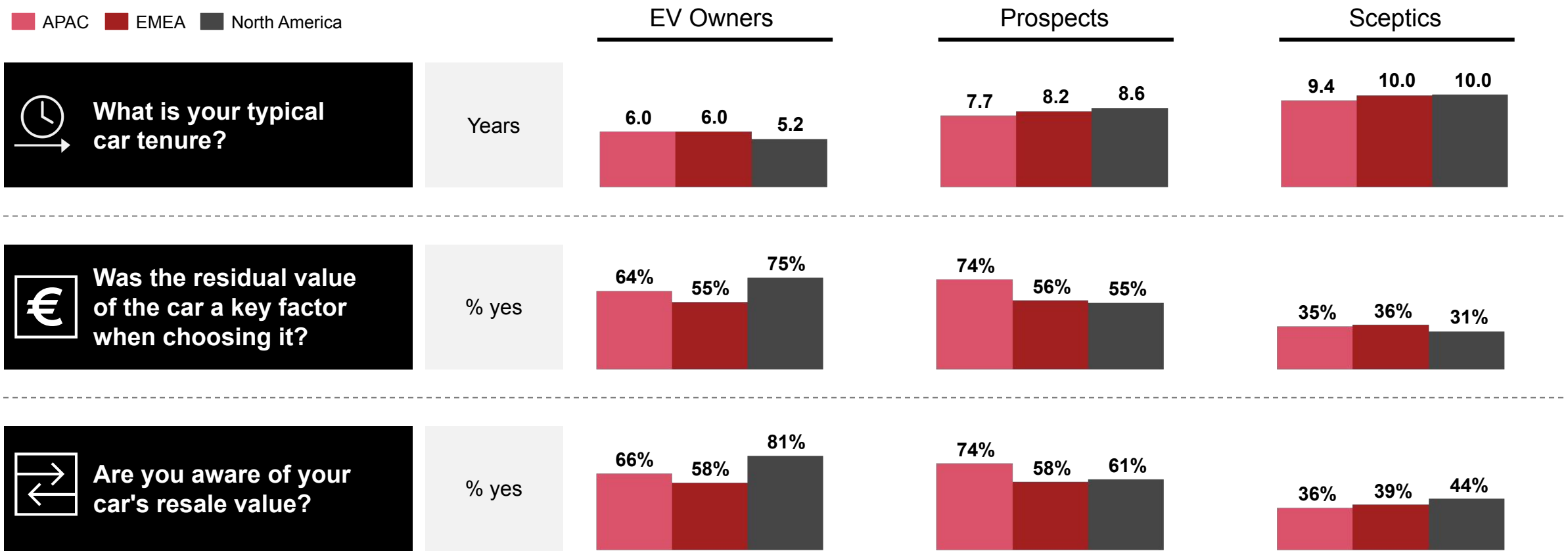
- Remote start (e.g. warm-up / Pre-conditioning)
- Remote support (e.g., live chat with agent)
- Locate a dealer / authorized service
- View battery state of health and current level of charging
- Remote park assist

Source: Strategy& analysis on feedback from consumer survey

Given a shorter typical car tenure, EV owners give more importance than sceptics to car residual value

Residual value

12,816 respondents



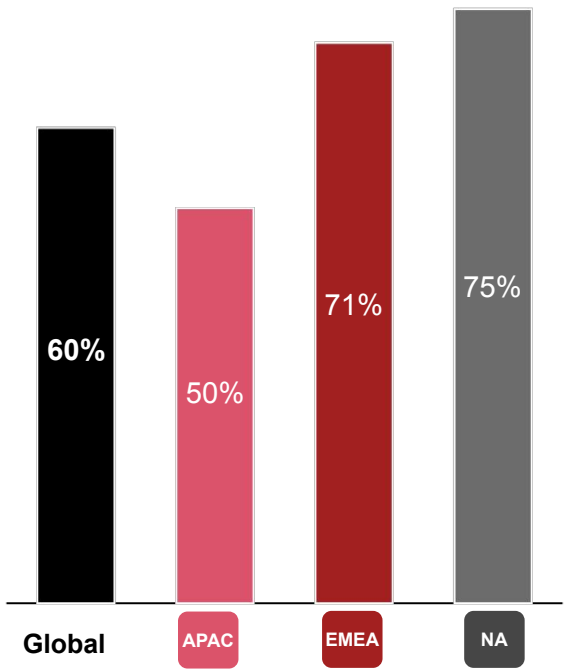
Source: Strategy& analysis on feedback from consumer survey

60% of EV owners would consider to purchase a used EV, yet uncertainty of battery SoH is a key barrier

Used EV – Drivers and barriers

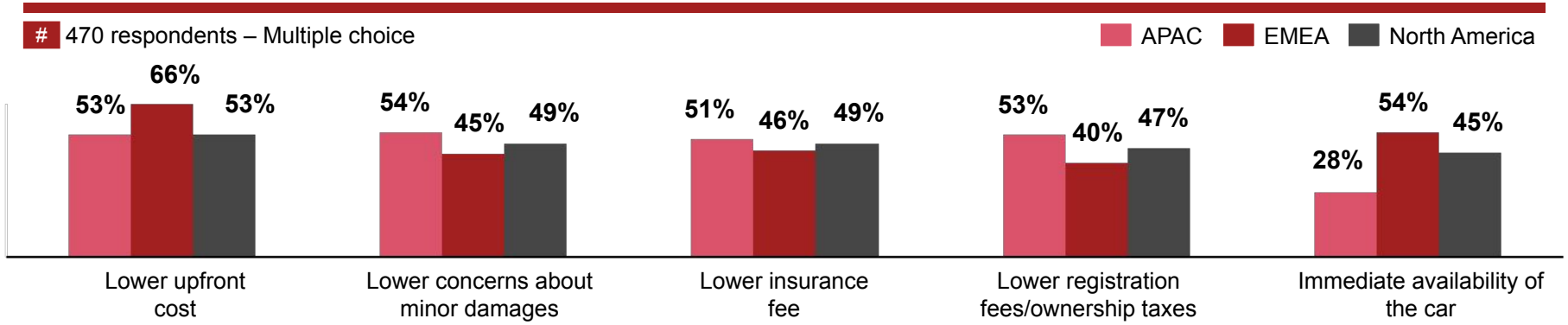
Would you buy a used EV as your next car? *(% of yes)*

778 respondents



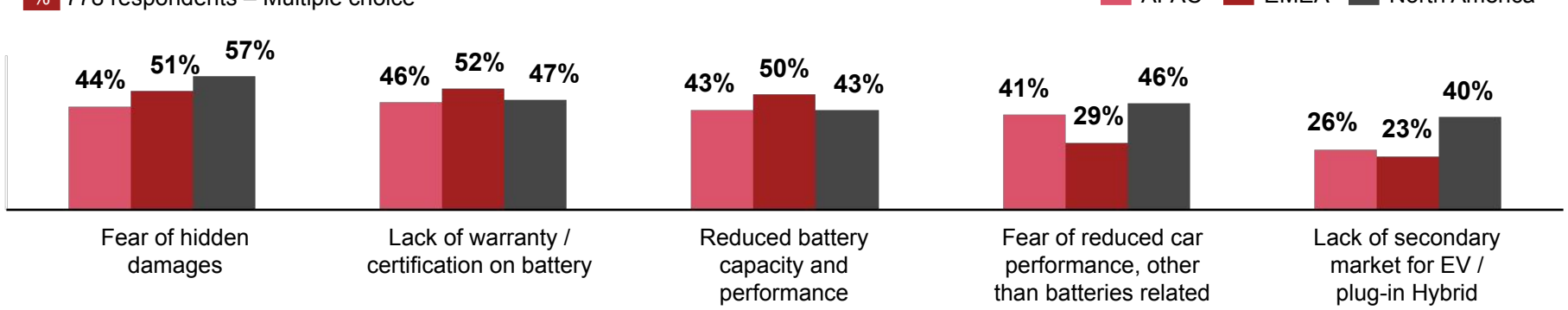
What are the top 5 reasons for buying a used EV?

470 respondents – Multiple choice



What are the top 5 reasons for not buying a used EV?

% 778 respondents – Multiple choice



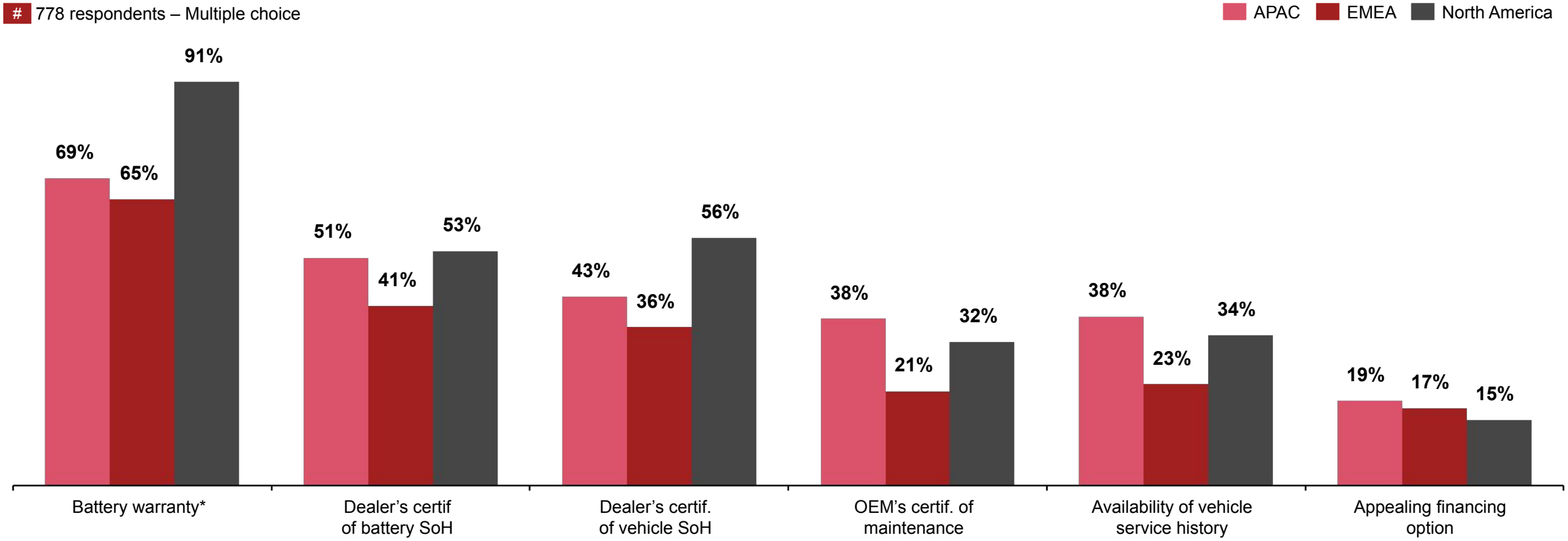
Source: Strategy& analysis on feedback from consumer survey

Used EV customers seek higher certainty in their purchase, with battery warranty and SoH certifications offerings helping boost this

Used EV – Drivers and barriers

Which factors would incentivize you to consider a used EV?

778 respondents – Multiple choice



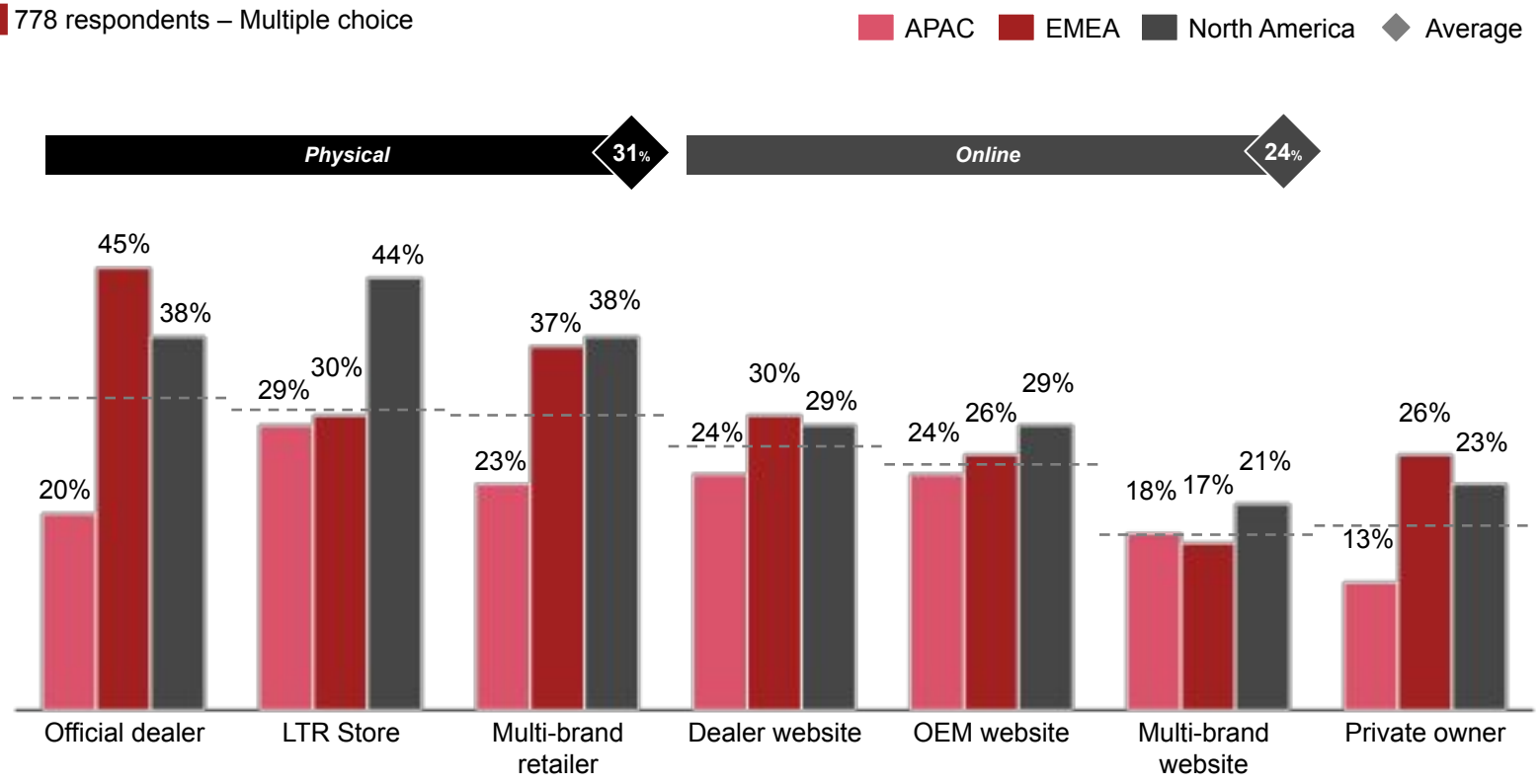
Notes: * Either manufacturer or third-party
Source: Strategy& analysis on feedback from consumer survey

Physical stores are the preferred purchasing channel for used EVs, either from official dealers, long term rental (LTR) providers or multi-brand retailers

Used EV – Purchase preferences

Where would you purchase your next used EV from?

778 respondents – Multiple choice



What are the most important elements of your overall used EV package?

778 respondents – Multiple choice

1. **Overall price / value**
2. **Charging solution**
3. **Certification / warranty of battery and vehicle**
4. **Finance solutions**
5. **Insurance solutions**

Source: Strategy& analysis on feedback from consumer survey

Customers who own a used EV are less wealthy and slightly older than those thap purchased a new vehicle, but there are differences across regions

Used EV – Focus on owners profiles

# 778 respondents	Used EV Owner (Δ with new EV owner)	Used EV Owner		
		APAC (Δ with new EV owner)	EMEA (Δ with new EV owner)	NA (Δ with new EV owner)
	10% of EV Owners bought a used car	**3%**	**20%**	**7%**
Income	**€61k** (-33k)	**€74k** (-27k)	**€55k** (-20k)	**€85k** (-38k)
Age	**44Yrs.** (+2Yrs.)	**38Yrs.** (-5Yrs.)	**45Yrs.** (+1Yrs.)	**52Yrs.** (+16Yrs.)
Residential area	**77%** (-19%)	**100%** (+4%)	**70%** (-2%)	**100%** (+11%)
Family size	**3.0** (-0.4)	**3.8** (+0.3)	**2.9** (-0.3)	**2.2** (-1.1)
Daily commute	**21km** (-2km)	**27km** (+7km)	**21km** (-6km)	**13km** (-8km)

Source: Strategy& analysis on feedback from consumer survey

02. Consumer viewpoints

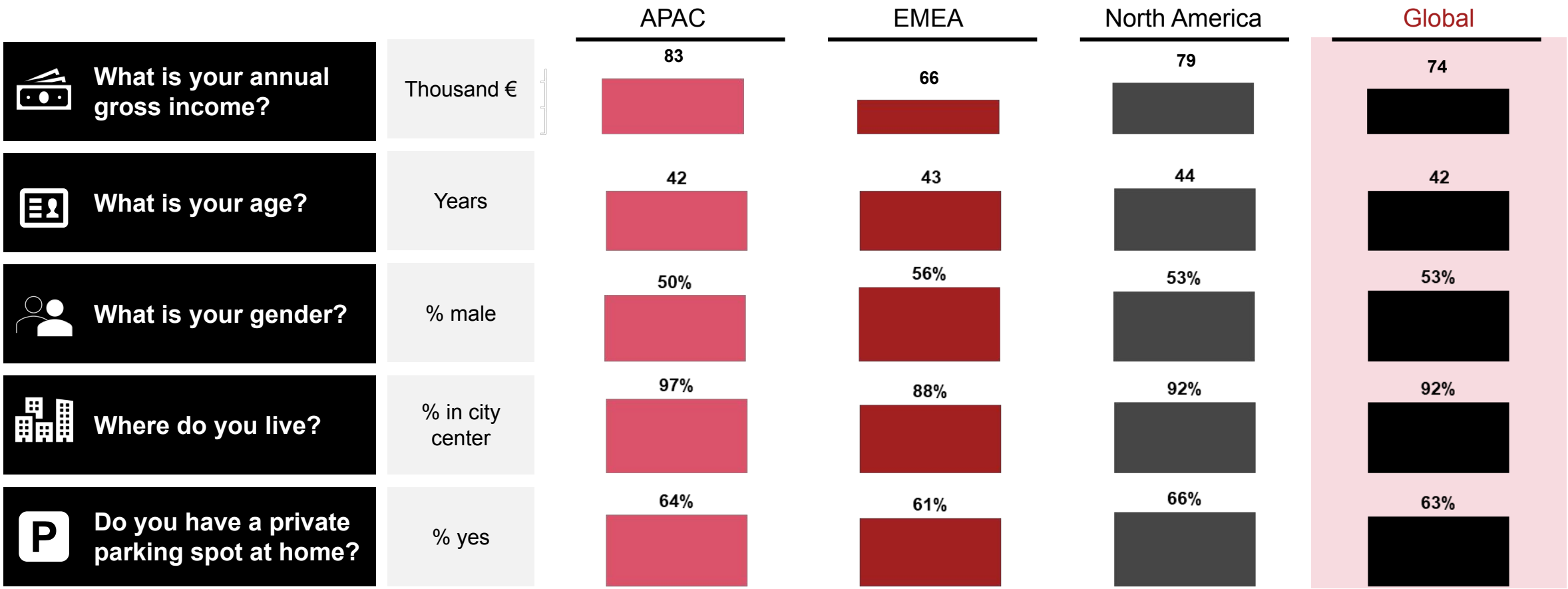
EV Prospects

Consumers who have declared their intention to buy an Electric Vehicle (BEV or PHEV) in the next 5 years

EV Prospects display regional variance in terms of demographics and mobility, indicating different needs sought in a future EV

EV prospects – Regional differences

7,930 respondents

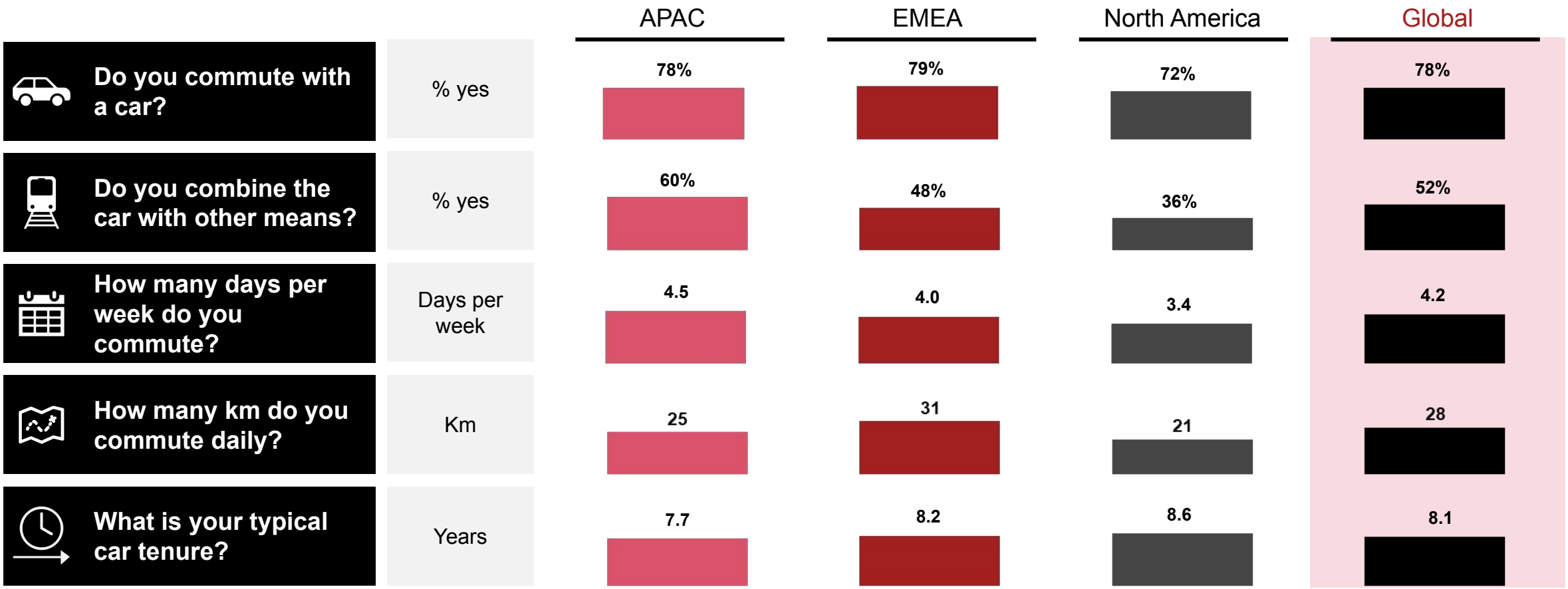


Source: Strategy& analysis on feedback from consumer survey

EV Prospects display regional variance in terms of demographics and mobility, indicating different needs sought in a future EV

EV prospects – Regional differences

7,930 respondents



Source: Strategy& analysis on feedback from consumer survey

We have identified six personas amongst future EV customers based on four behavioural dimensions

Key personas






	Tech Enthusiast	Dreamers	Luxurious	Pragmatic	Conventionalist	Frugal
Environmental Conscience	Concerned about the environment, but not their top priority	Environment and climate change are top priorities	Environment is among the lowest priorities	Environment is crucial but not worth the extra mile	Not particularly concerned about the environment	Concerned about the environment but not their top priority
Technology Confidence	Early adopter, has high confidence with technology	Digital native, feels comfortable with technology	Buys mainstream technology, uses basic functionalities	Digital native, feels comfortable with technology	Uses basic technology once it becomes popular	Not addicted to technology, uses it to find opportunities
Price Sensitivity	Willing to pay extra to gain early access to technologies	Is willing to pay higher price for a good cause	Price is not a concern	Seeks good price/quality ratio	Saving is important, but “you get what you pay for”	Price conscious, always looking for bargains
Car Usage	Combines the car with other means of transport	Doesn’t use car whenever possible	Uses car as primary transportation	Combines the car with other means of transport	Uses car as primary mode of transportation	Minimizes car usage preferring cheaper alternatives

Source: Strategy& analysis on feedback from consumer survey

Tech Enthusiasts, Dreamers, Luxurious and Pragmatic consistently show the highest intention to buy in the near future

Focus on key personas – EV purchase intention

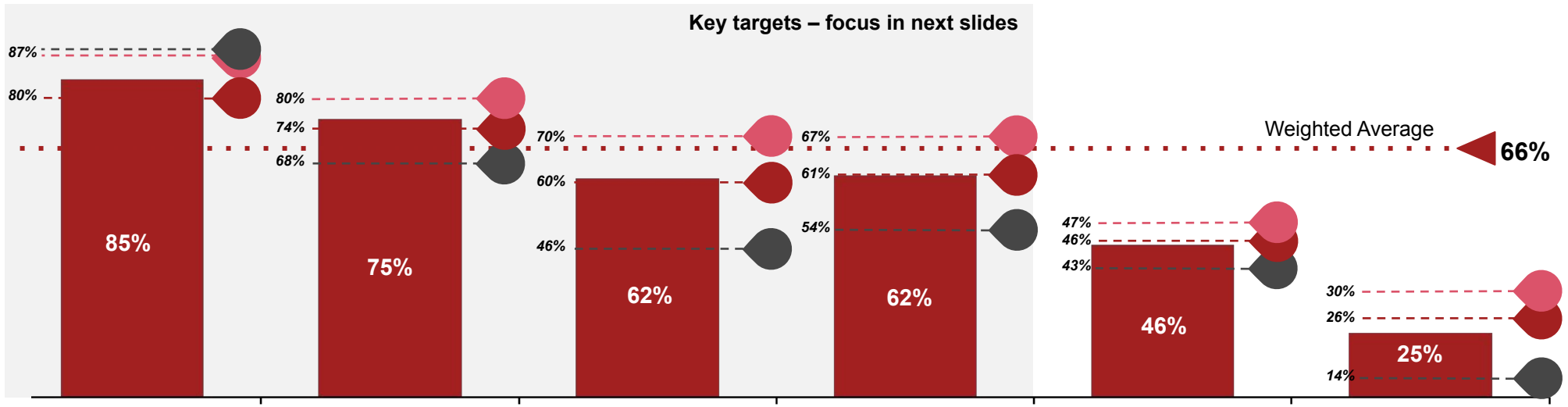
7,930 respondents

APAC EMEA NA

	Tech Enthusiast	Dreamers	Luxurious	Pragmatic	Conventionalist	Frugal
Cluster size	39% 24% 22%	19% 15% 18%	6% 7% 6%	22% 29% 27%	9% 19% 18%	5% 6% 10%

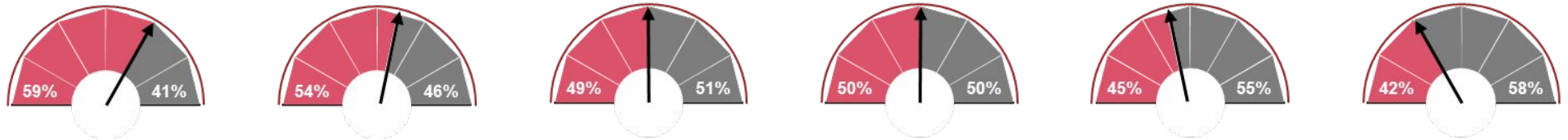
Intention to buy EV

Key targets – focus in next slides



EV Preference

BEV PHEV Persona's preference



Source: Strategy& analysis on feedback from consumer survey

Tech Enthusiasts are high-income middle-aged people interested in the latest tech feature, representing a good target for OEMs

Focus on target customers – Tech Enthusiasts

Tech enthusiast

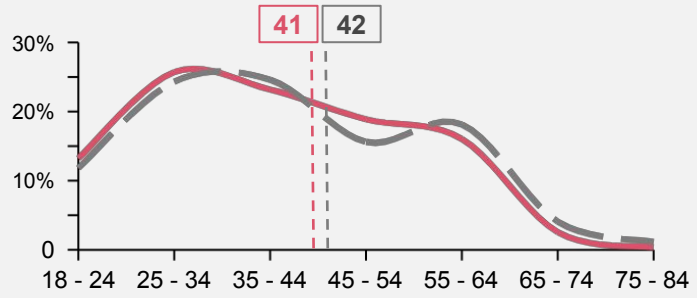
Intention to buy EVw within 2 yrs.	51%
Intention to buy online	67%
Environmental Conscience	Environment and climate change are top priorities — 3.6
Technology Confidence	Digital native, feels comfortable with technology — 4.5
Price Sensitivity	Is willing to pay higher price for a good cause — 1.3
Car Usage	Doesn't use car whenever possible — 4.2

Total population score | Tech Enthusiast score

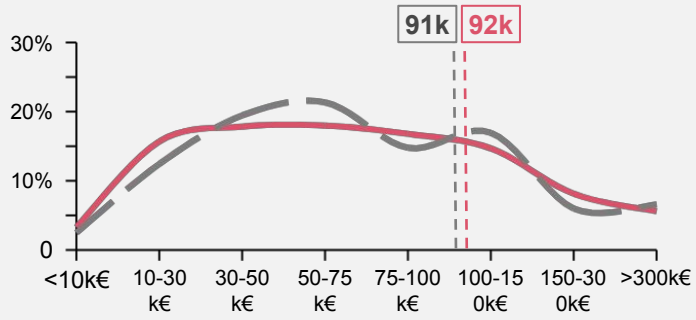
Profiling EV prospects with intention to buy

Tech. ent. | EV owners | # Tech. ent., average value | # EV owners, average value

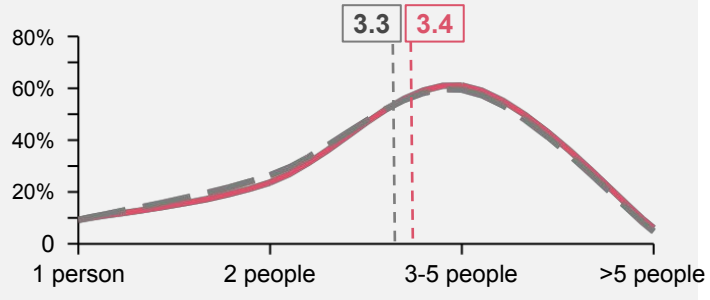
What is your age?



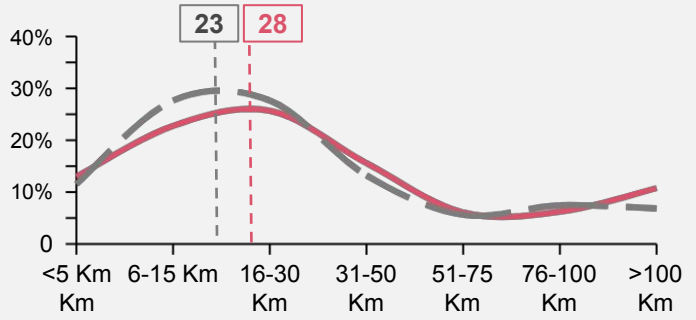
What is your annual gross income?



What is your family size?



How many km do you commute daily?



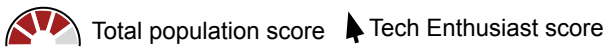
Source: Strategy& analysis on feedback from consumer survey

Dreamers' intention to buy remains high but lower than Tech Enthusiasts, mainly given their preference towards a low car usage

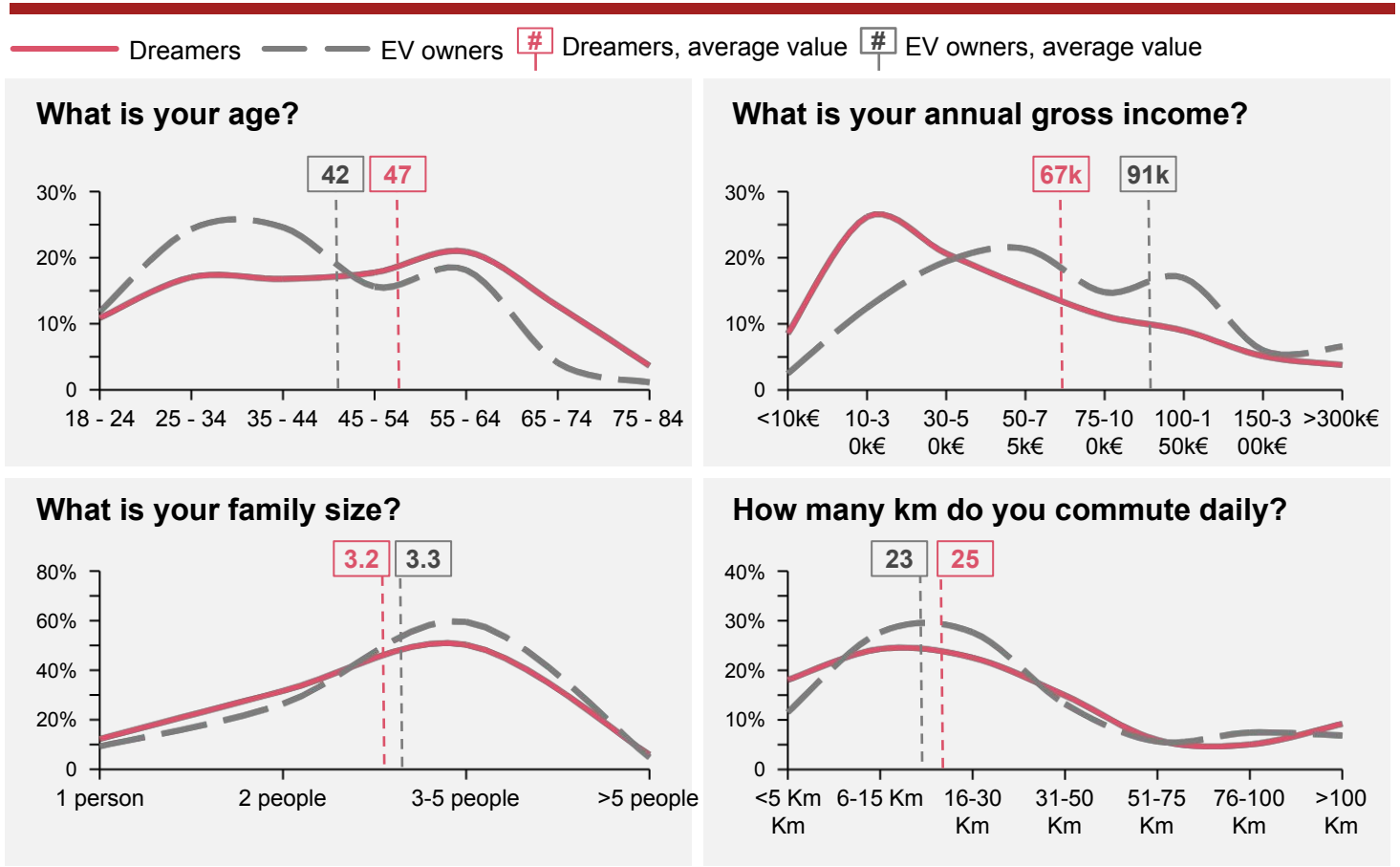
Focus on target customers – Dreamers

Dreamer

Intention to buy EVw within 2 yrs.	31%
Intention to buy online	45%
Environmental Conscience	Environment and climate change are top priorities
Technology Confidence	Digital native, feels comfortable with technology
Price Sensitivity	Is willing to pay higher price for a good cause
Car Usage	Doesn't use car whenever possible



Profiling EV prospects with intention to buy



Source: Strategy& analysis on feedback from consumer survey

Luxurious are non price-sensitive people, often using a car and therefore represent a key target for premium OEMs

Focus on target customers – Luxurious

Luxurious

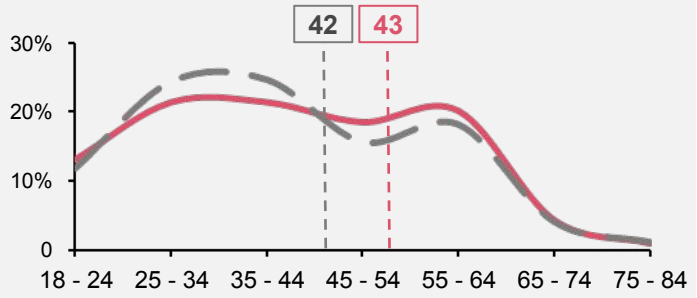
Intention to buy EVw within 2 yrs.	31%
Intention to buy online	45%
Environmental Conscience	Environment is among the lowest priorities (2.9)
Technology Confidence	Buys mainstream technology but uses basic functionalities (2.8)
Price Sensitivity	Price is not a concern (0.2)
Car Usage	Uses car as primary transportation means (4.5)

Total population score | Tech Enthusiast score

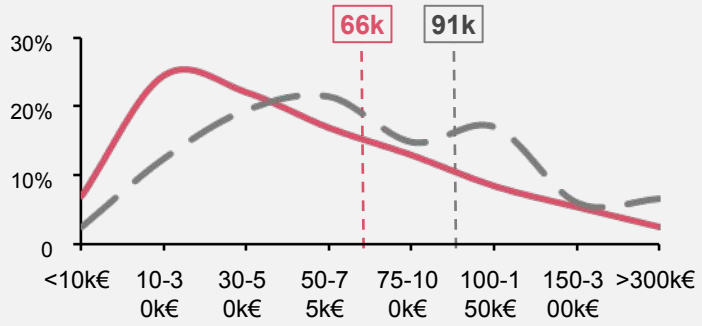
Profiling EV prospects with intention to buy

Luxurious | EV owners | # Luxurious, average value | # EV owners, average value

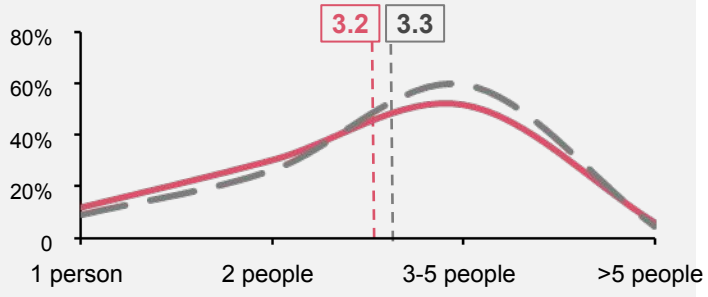
What is your age?



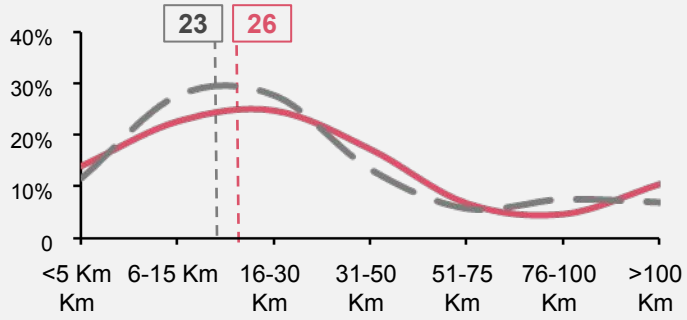
What is your annual gross income?



What is your family size?



How many km do you commute daily?



Pragmatic tend to be more rational than emotional with their purchases, making them a relevant target for mass-market OEMs

Focus on target customers – Pragmatic

Pragmatic

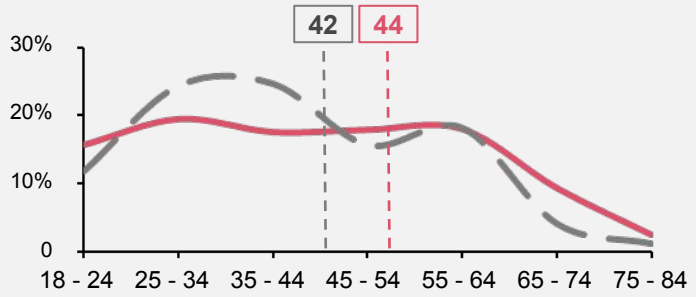
Intention to buy EVw within 2 yrs.	21%
Intention to buy online	43%
Environmental Conscience	Caring about environment, but not a top priority — 3.0
Technology Confidence	Digital native, feels comfortable with technology — 3.1
Price Sensitivity	Price is definitely top priority — 3.2
Car Usage	Combines the car with other means of transport — 3.1

Total population score Tech Enthusiast score

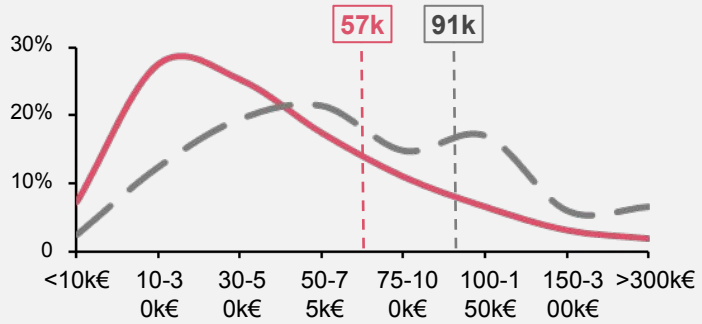
Profiling EV prospects with intention to buy

Pragmatic EV owners # Pragmatic, average value # EV owners, average value

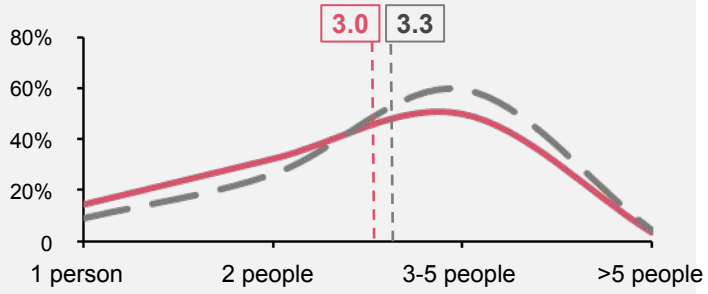
What is your age?



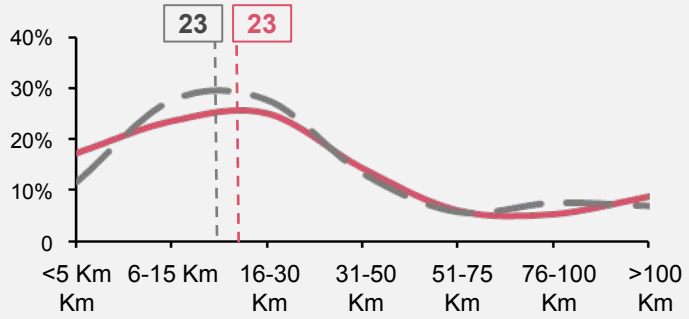
What is your annual gross income?



What is your family size?



How many km do you commute daily?



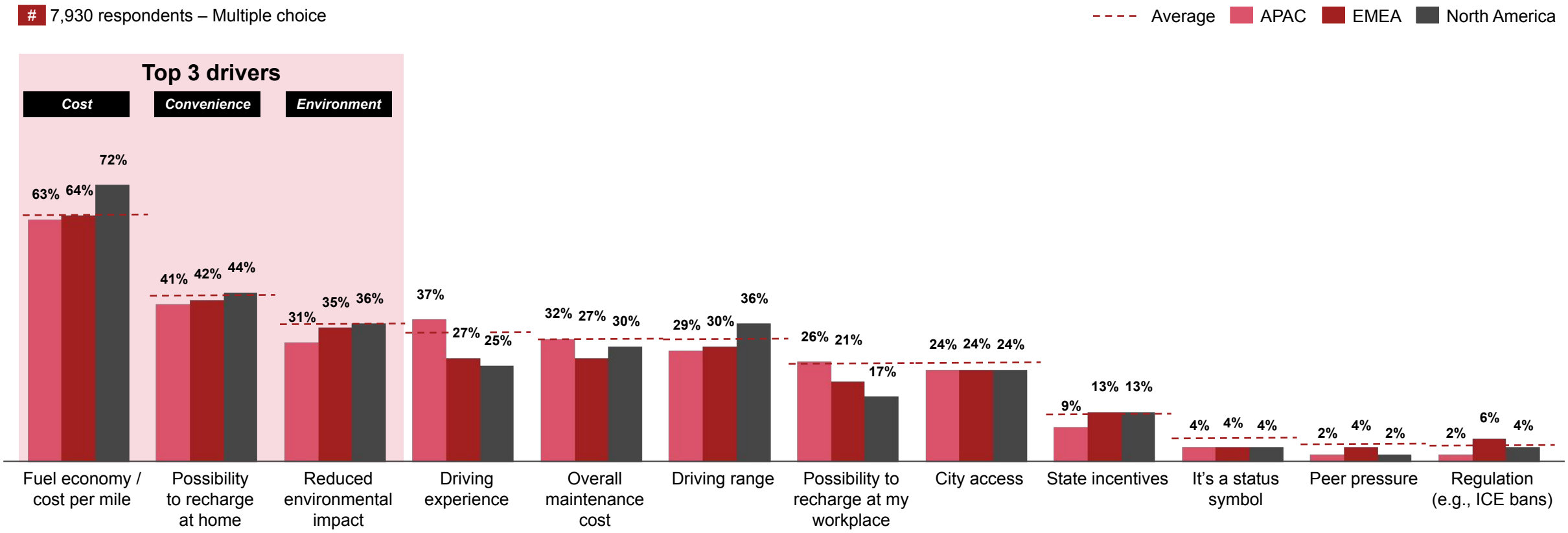
Source: Strategy& analysis on feedback from consumer survey

Low operating costs, convenience and reduced environmental impact are key drivers when considering the purchase of an EV

Key purchasing drivers

What are main reasons that drive you to buy an EV?

7,930 respondents – Multiple choice

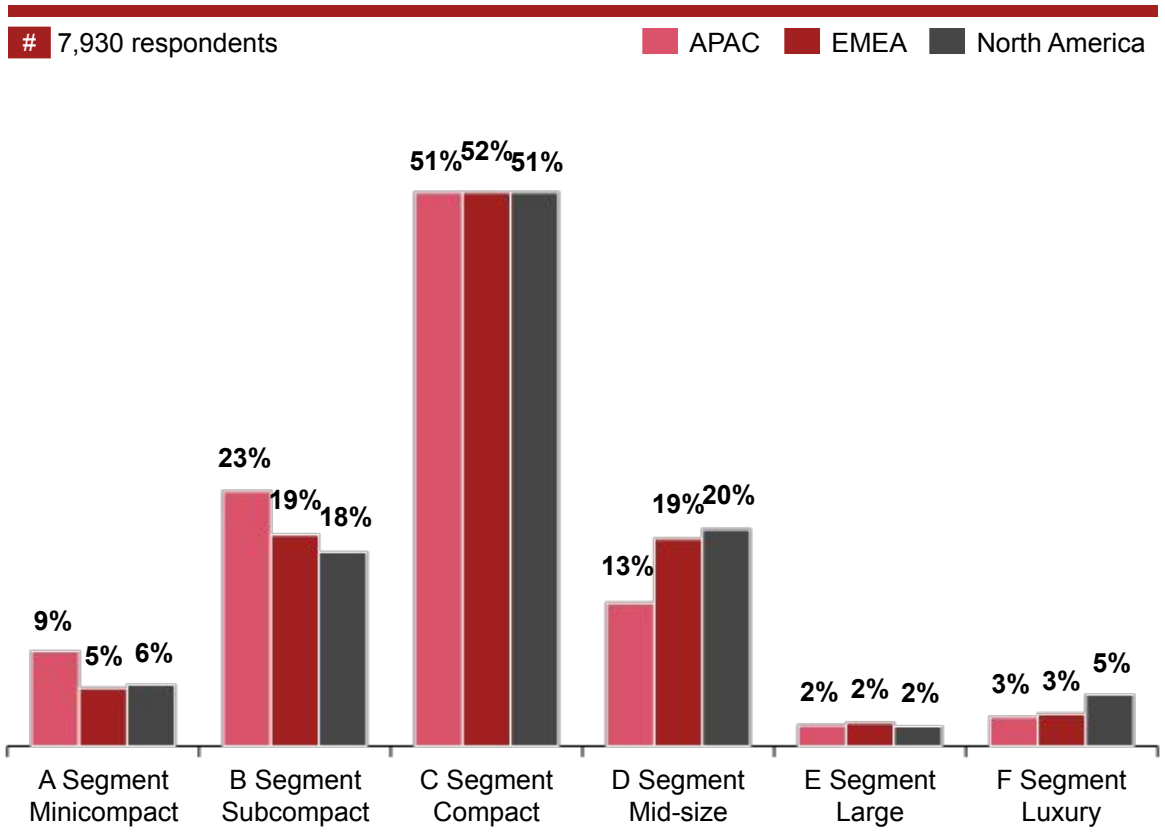


Source: Strategy& analysis on feedback from consumer survey

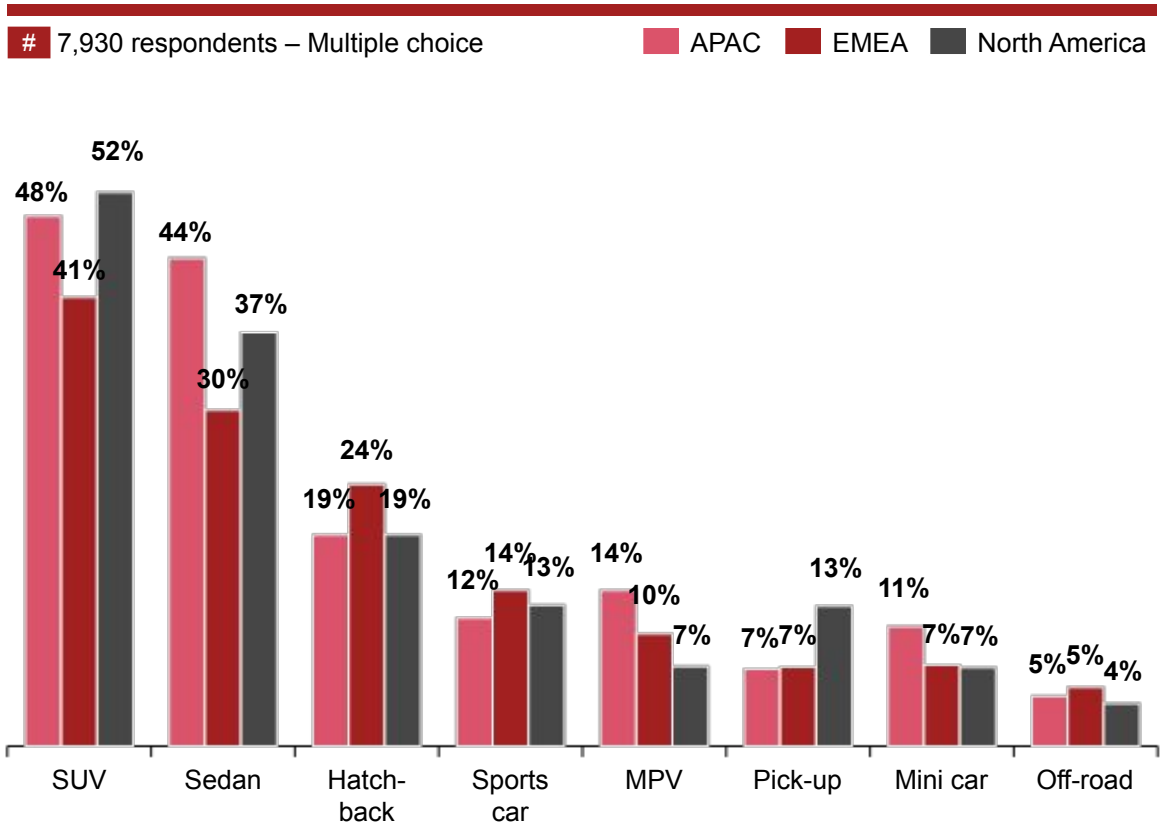
EV prospects declared a significant interest in C-segment/Compact vehicles and SUVs, with a consistent distribution across all regions

Purchasing preferences

What type of car would you buy?



What type of body type?

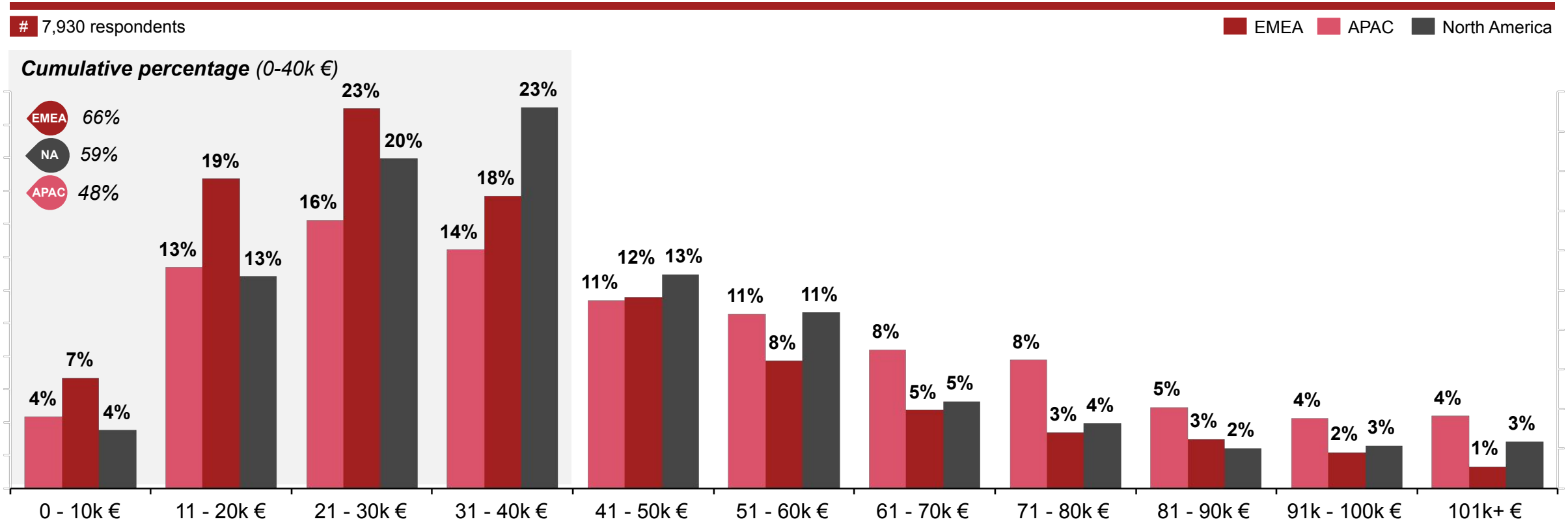


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

50-60% of EV prospects tend to expect their new EV to have a price point between 20-40k€

Purchasing preferences

How much are you expecting to pay your next EV?



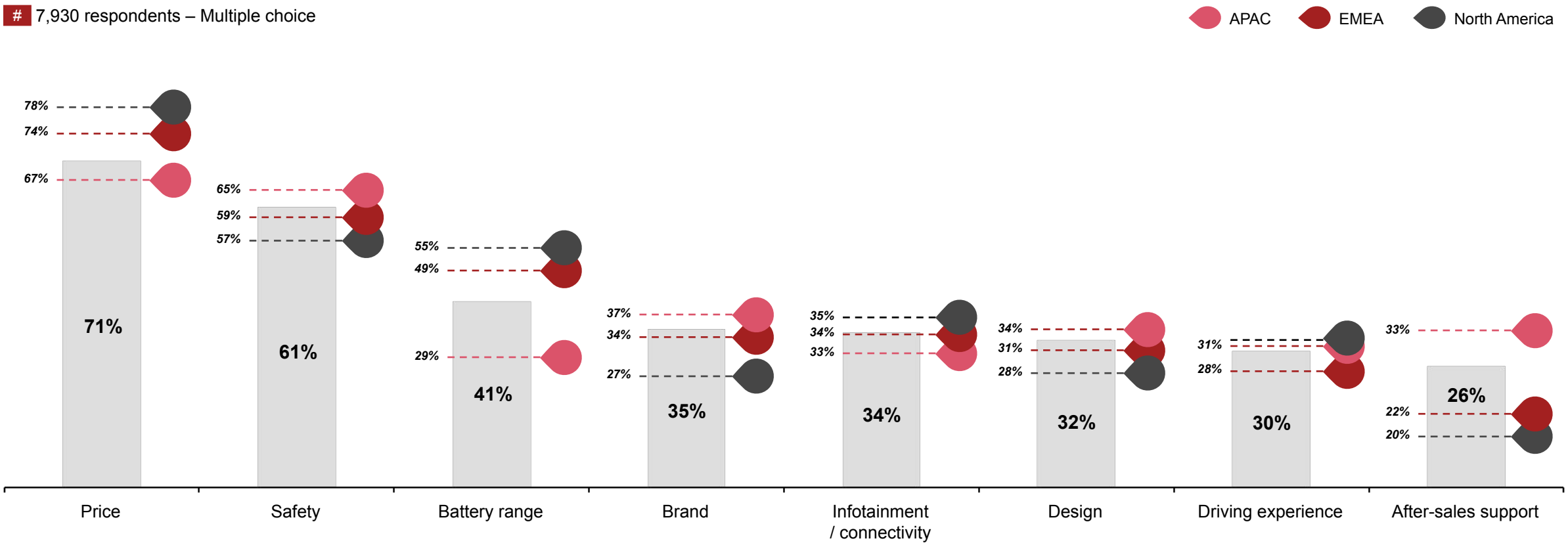
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

When choosing among different EV models, overall price, safety and battery range are the key criteria

Purchasing criteria

Which are the most important criteria when selecting your new electric car?

7,930 respondents – Multiple choice

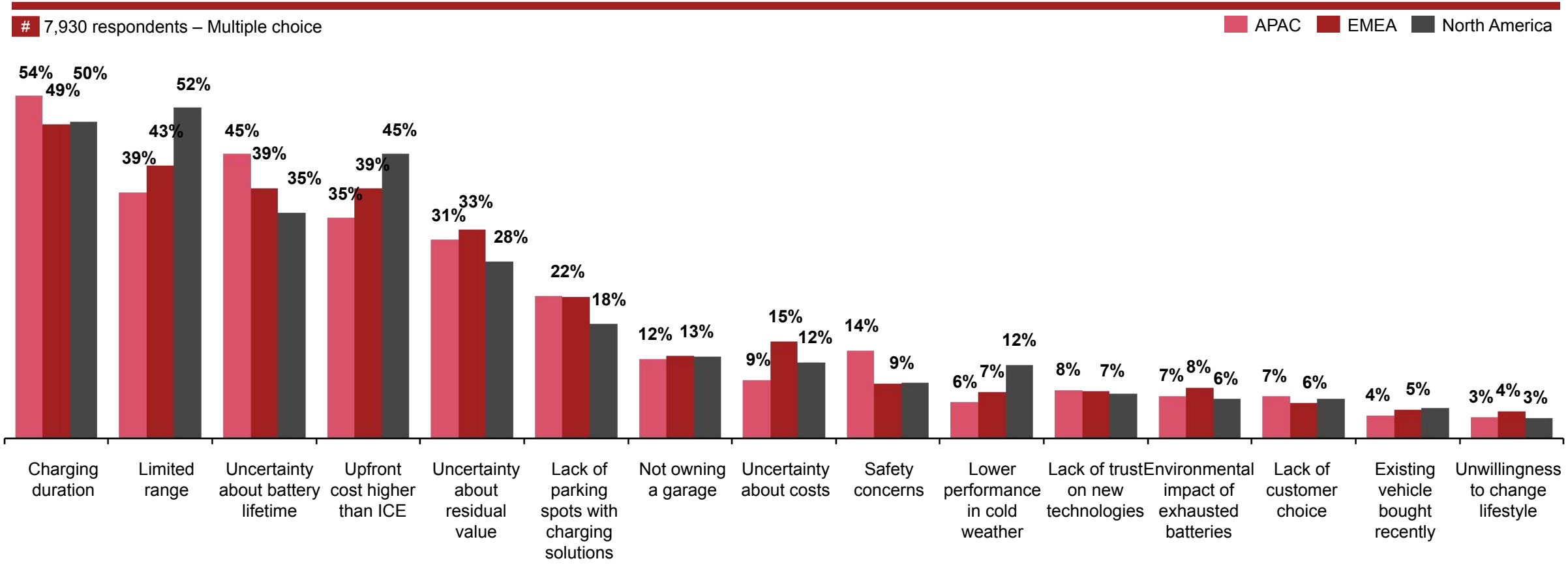


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Charging duration, range and battery lifetime are the key barriers stopping EV prospects from purchasing an EV

Key purchasing barriers

What are the key factors that discouraged you from buying an electric vehicle up until now?

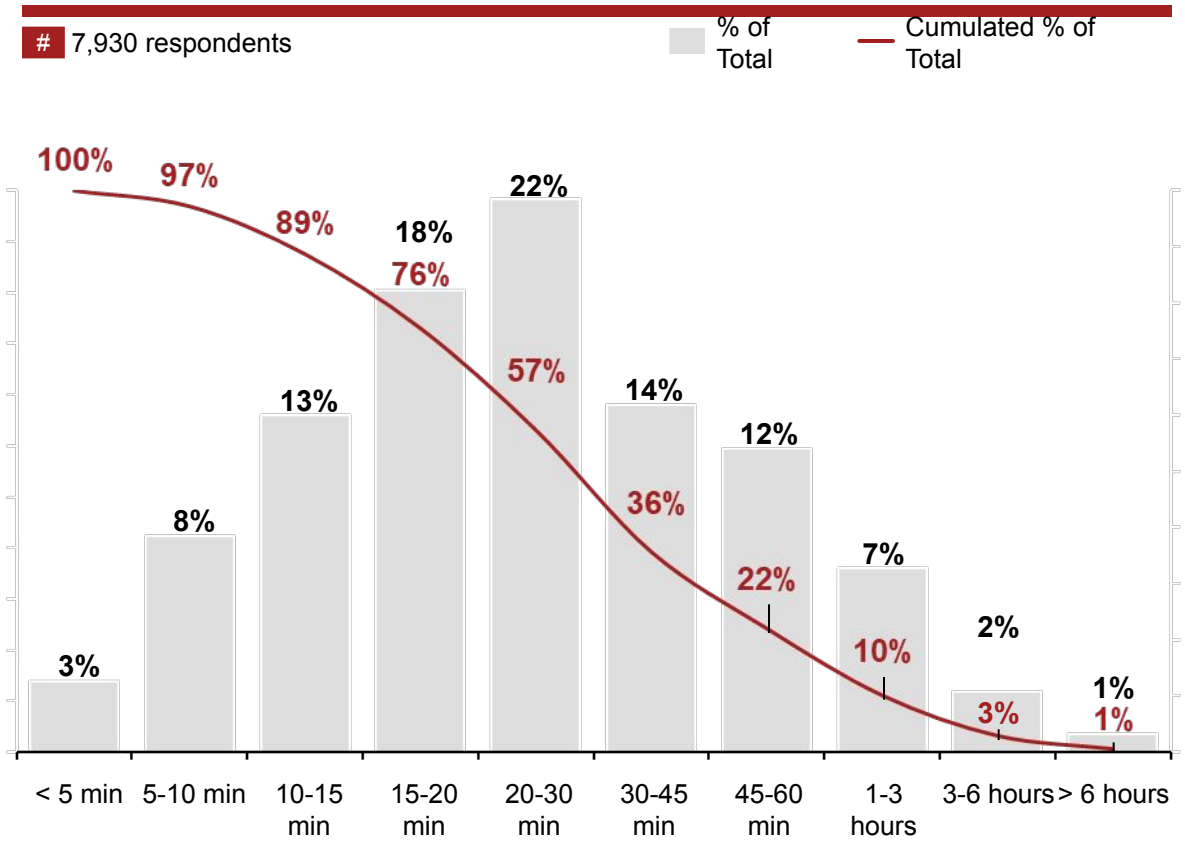


Source: Strategy& analysis on feedback from consumer survey

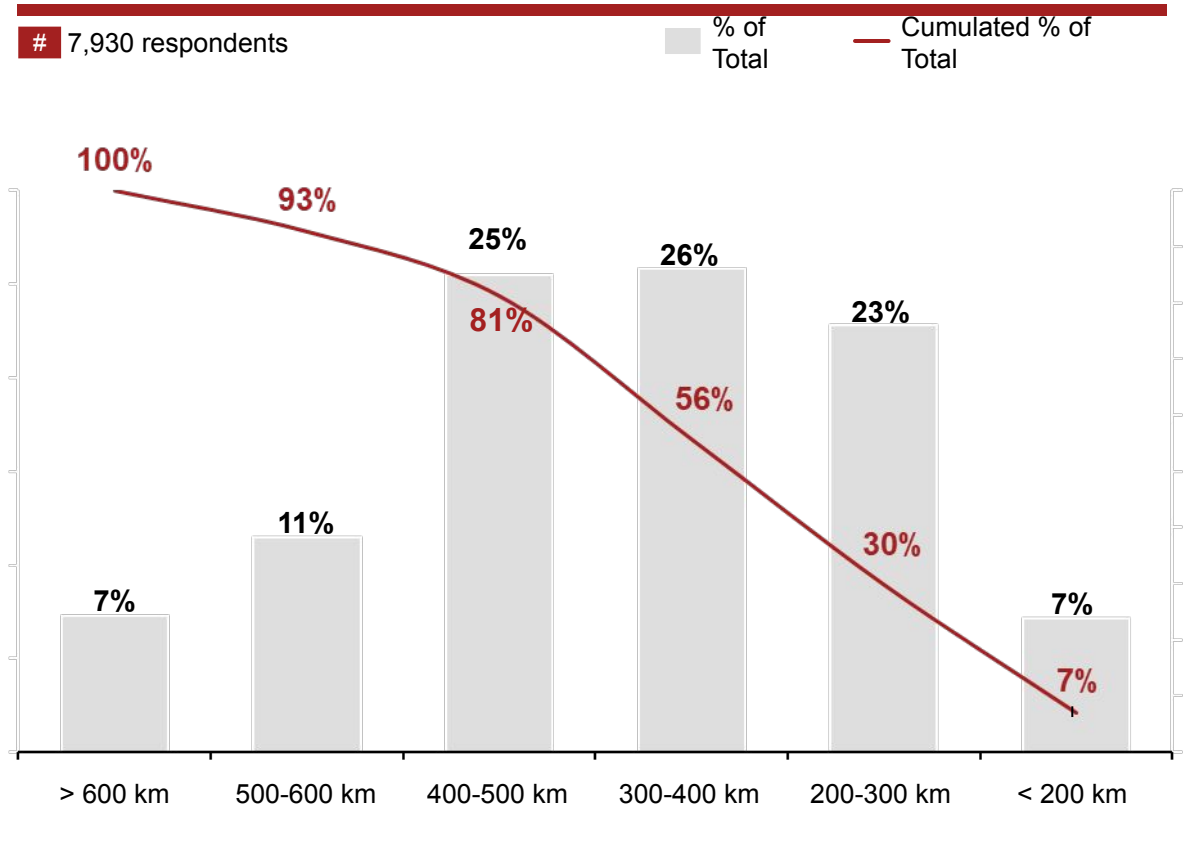
60% of EV prospects would consider it acceptable to have a 300-400km driving range and full charge their car in less than 30 mins

Charging time and driving range expectations

How long would you consider acceptable to charge your car?



What would you consider an acceptable driving range?

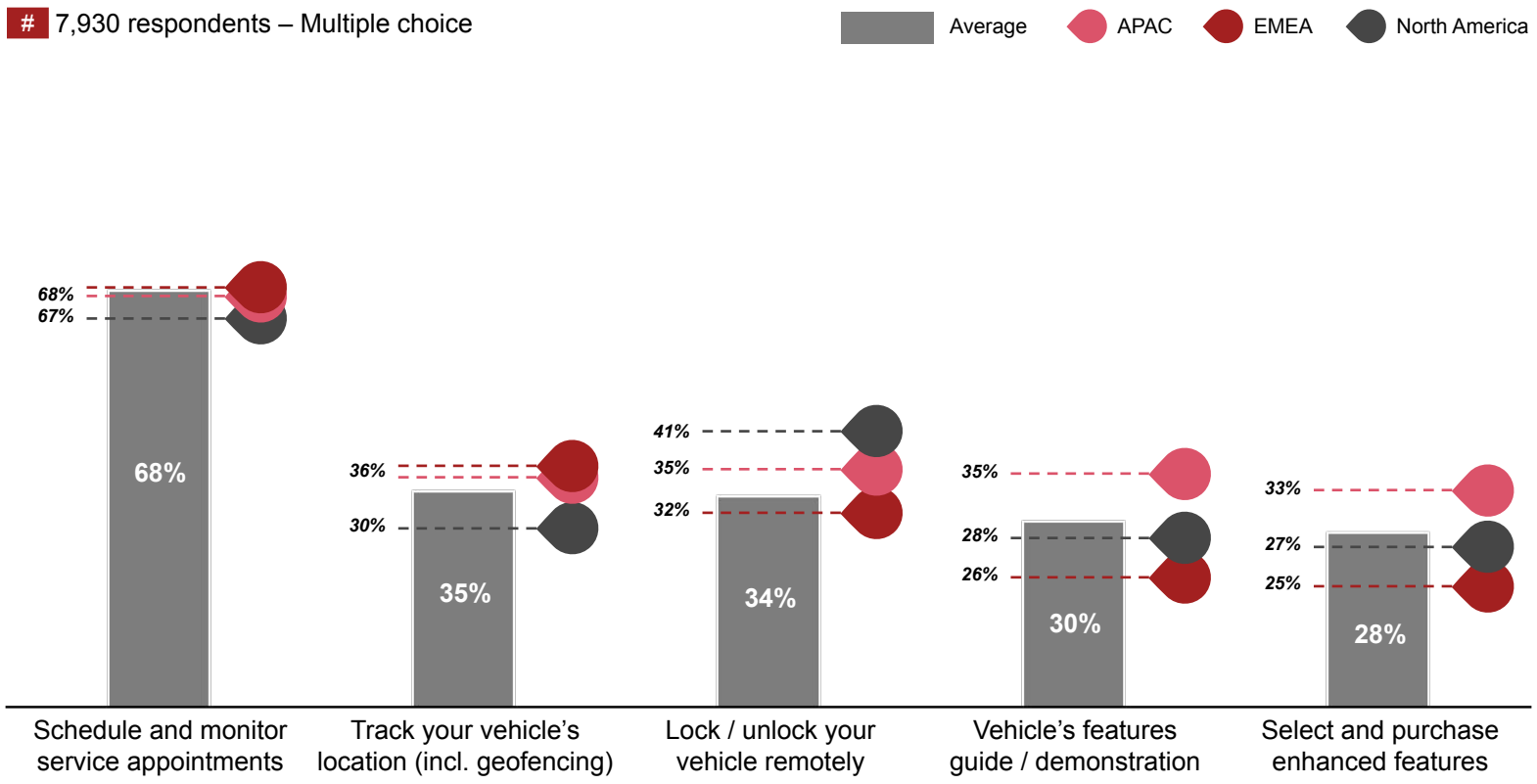


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

OEM car apps are seen as a useful tool to manage the car lifecycle, schedule a service appointment and manage an EV remotely

Digital app

Which are the top 5 services do you use / would you like to have in your car app?



Other services of interest

- Remote start (e.g. warm-up / Pre-conditioning)
- Locate a dealer / authorized service
- View battery state of health and current level of charging
- Remote support (e.g., live chat with agent)
- Remote park assist

Source: Strategy& analysis on feedback from consumer survey

EV Sceptics

Consumers who have declared their intention not to buy an Electric Vehicle (BEV or PHEV) in the next 5 years

Sceptics display regional variance in terms of demographics and mobility, indicating different mobility needs

EV sceptics – Regional differences

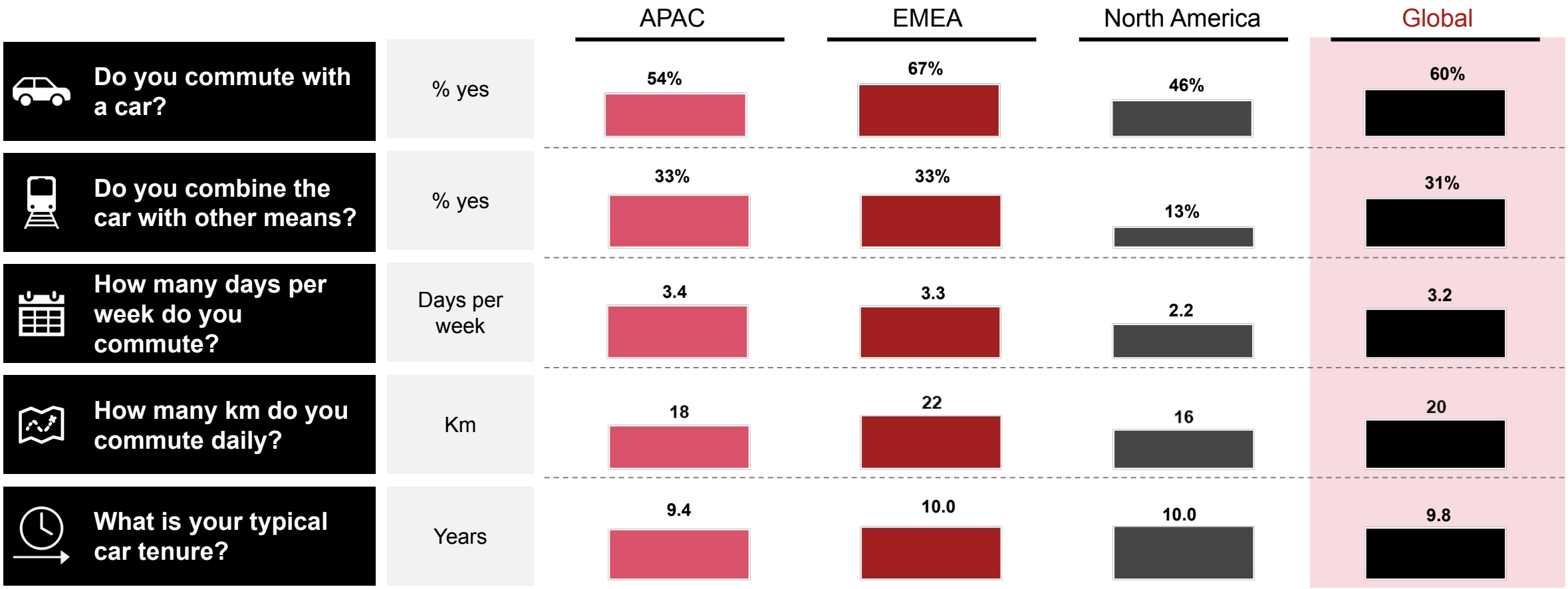
4,108 respondents

Source: Strategy& analysis on feedback from consumer survey

Sceptics show substantial differences across the globe requiring a localized approach to convert them into prospects

EV sceptics – Regional differences

4,108 respondents



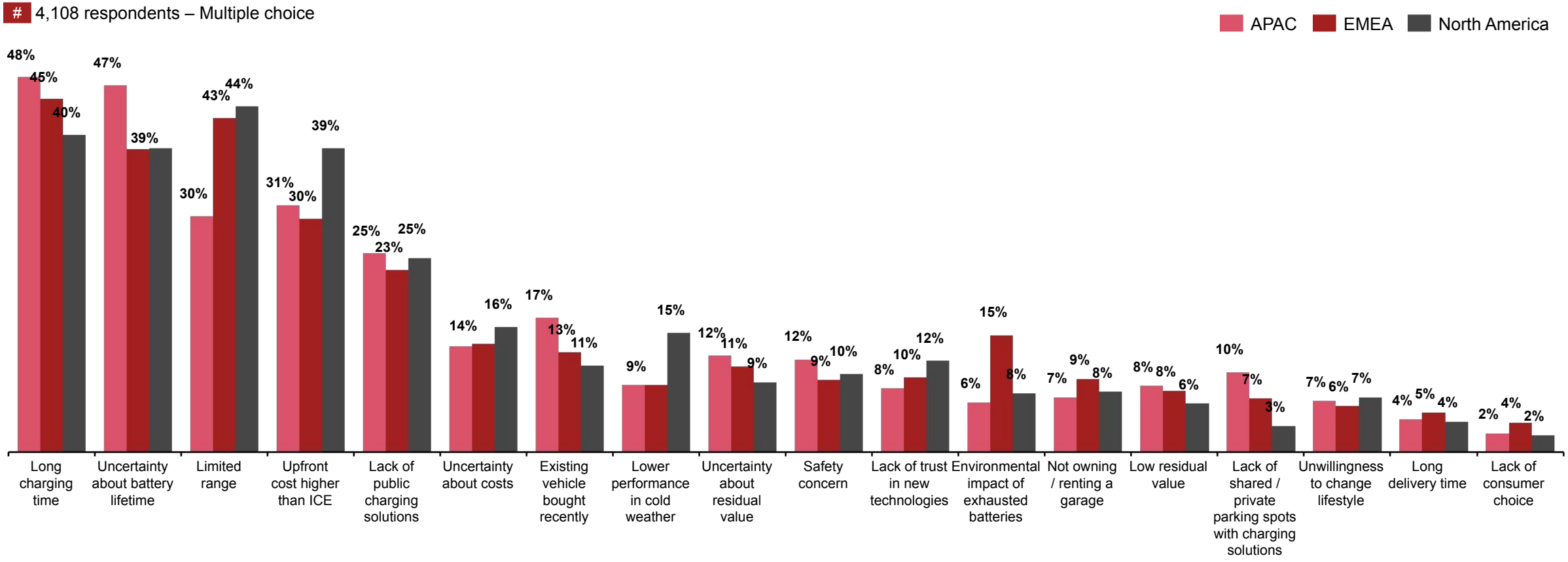
Source: Strategy& analysis on feedback from consumer survey

Key inhibitors vary across geographies, with EMEA and North America being put off by the limited driving range while APAC from the charging time

Main reasons for rejection

What are the main reasons that discourage you from buying an EV?

4,108 respondents – Multiple choice



Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

03.

eReadiness Index

The eReadiness Index is comprised of 14 KPIs grouped into 4 main dimensions for each country in scope

eReadiness Index Dimensions and KPIs

Government incentives

Analysis of specific government incentives with focus on:

- Grants (Purchase subsidies, national and local grants, scrapping bonus)
- VAT exemption
- Registration tax reduction
- Annual ownership tax exemption

Infrastructure

- Installed public charging points per thousand cars (total circulating EV and non-EV fleets)
- Installed public fast charging points (>150kW) per highway km
- Share of renewable energy generation
- Ratio of gasoline to electricity driving cost

Supply

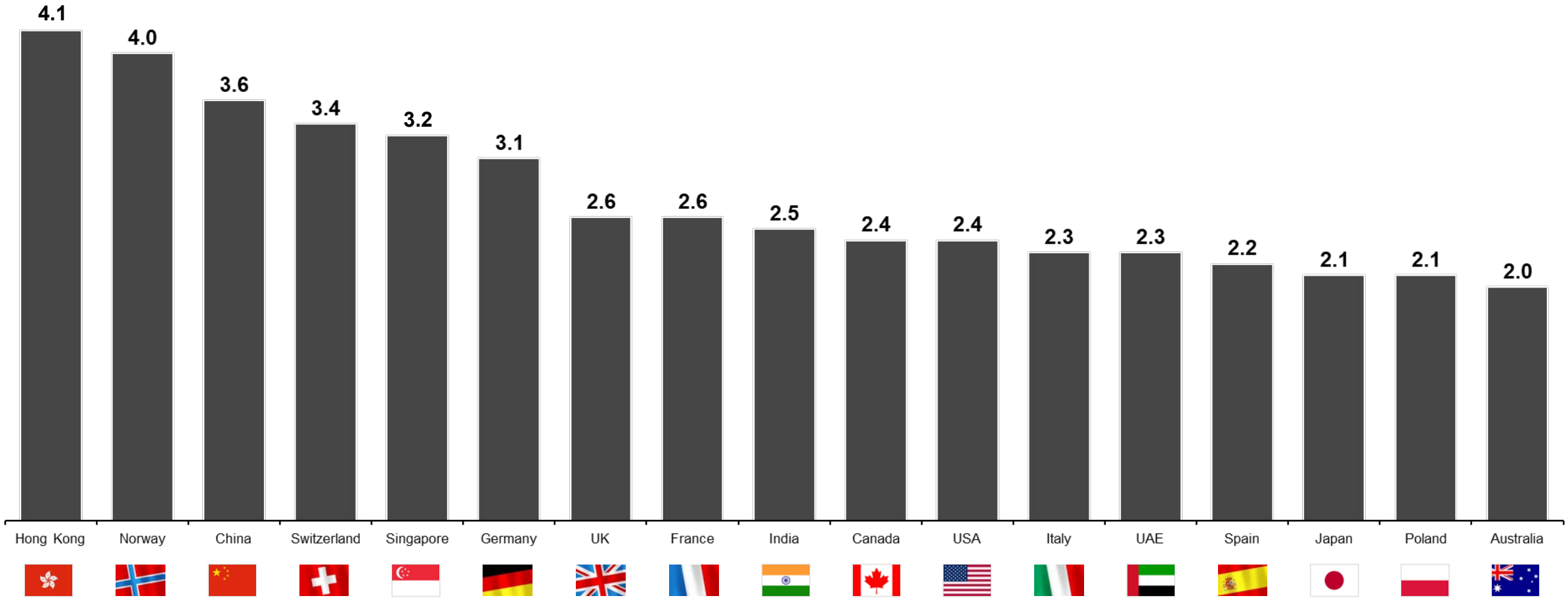
- EV share of total registrations
- Depreciation rate of a country's top selling EVs
- Number of pure EV players present in the market

Demand

- Consumers' willingness to buy an EV within the next two years
- Share of short distance (<30km per day) drivers
- Average household income

Hong Kong and Norway are the most eReady countries across all dimensions while Australia seem the least mature one for e-mobility

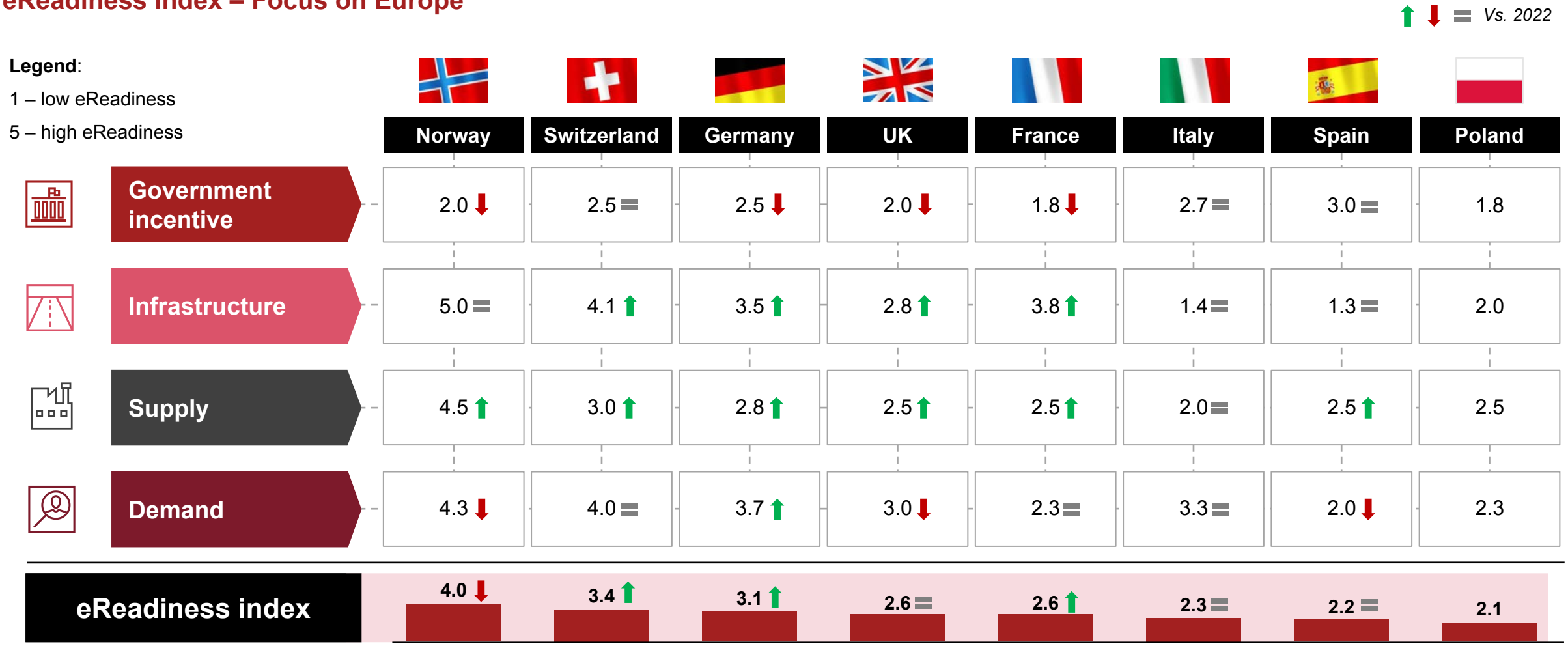
eReadiness Index



Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

In Europe, Norway is the most eReady country across all dimensions while Italy, Spain and Poland seem the least mature for e-mobility

eReadiness Index – Focus on Europe

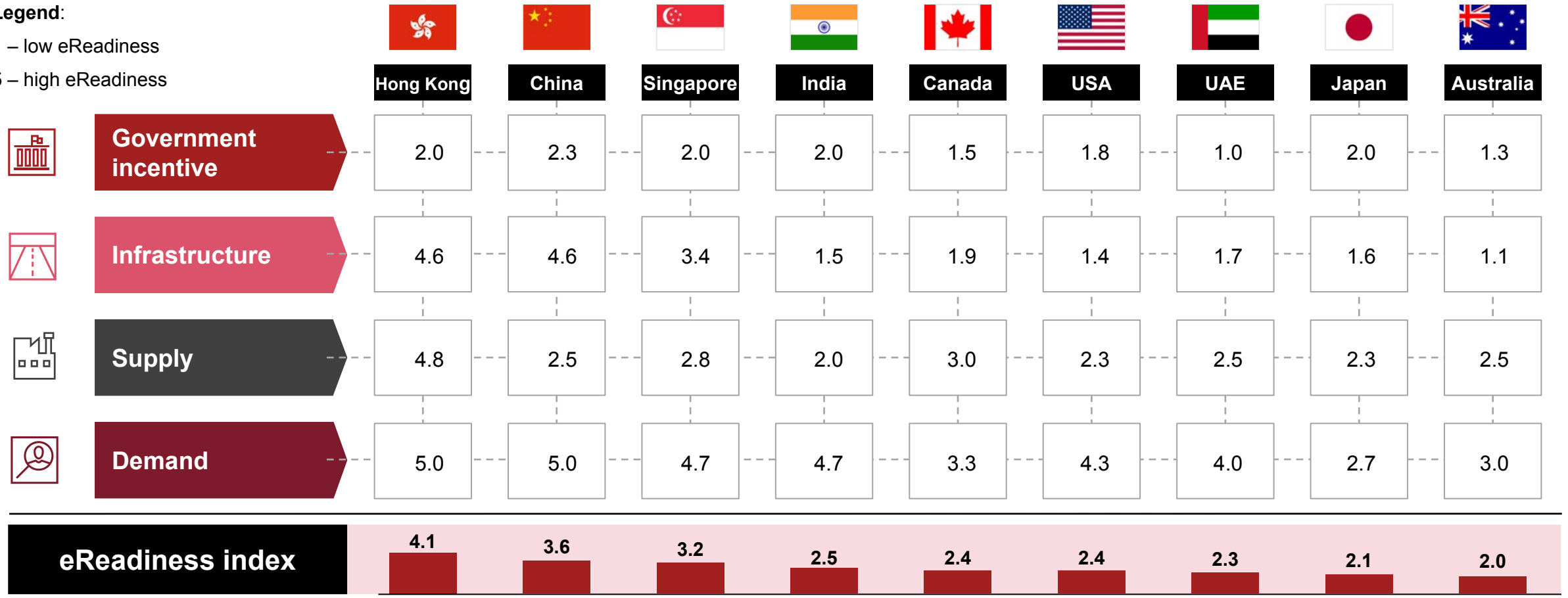


Source: Strategy& Analysis

Hong Kong, China and Singapore immediately rank among the most eReady countries across all countries considered

eReadiness Index - Rest of the World

Legend:
1 – low eReadiness
5 – high eReadiness



Source: Strategy& Analysis

Government incentives are measured based on consumer fiscal savings

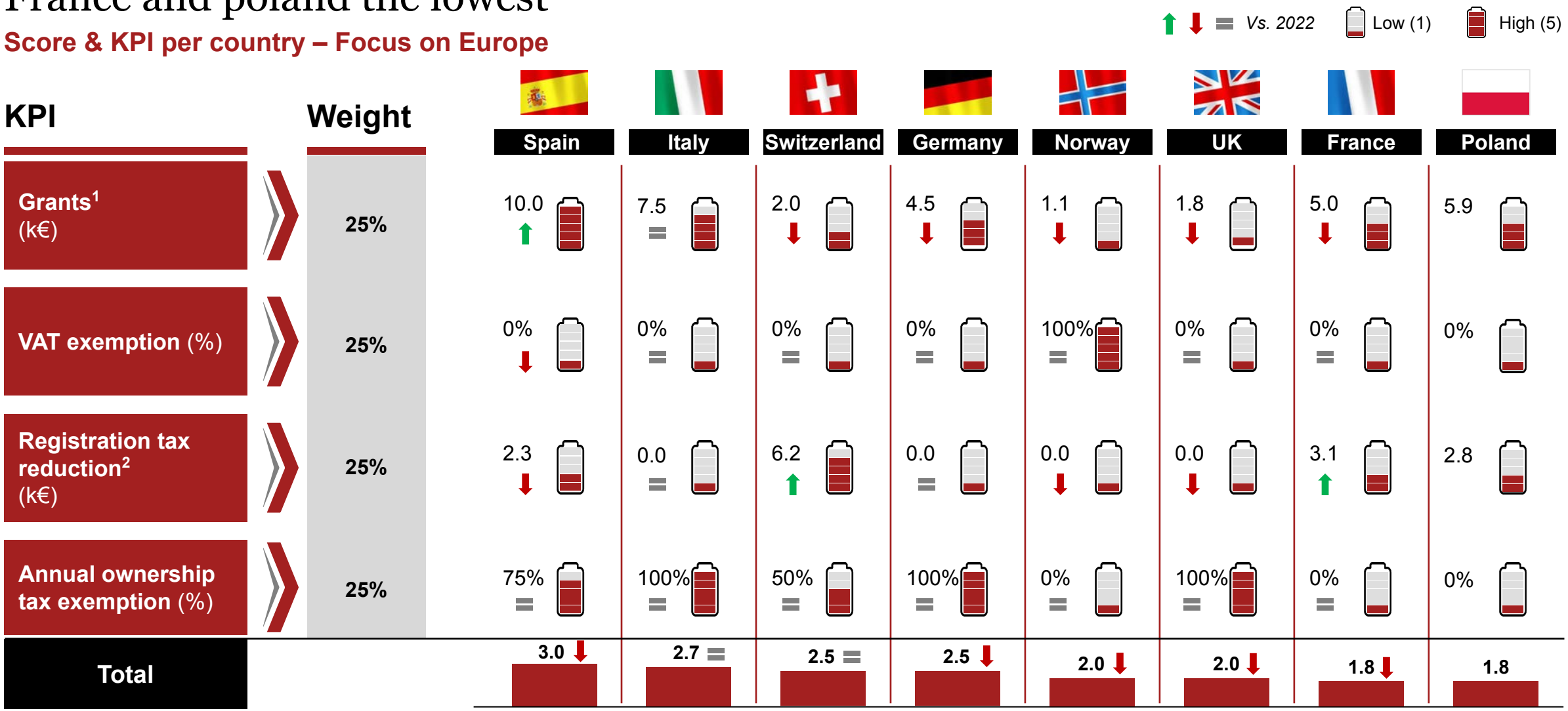
Dimension overview

KPI	Definition	Scoring
Grants	Total amount of maximum **purchase subsidies**, **national** and **local grants**, **scrapping bonus** per EV granted to a consumer by the government	**Low** (1): 0–2,000€/BEV **High** (5): > 8,000€/BEV
VAT exemption	Exemption or maximum reduction on **VAT granted** to a consumer when buying an EV	**Low** (1): 0–20% reduction **High** (5): > 80% reduction
Registration tax reduction	Exemption or maximum reduction on **one-off registration taxes, import taxes** or CO2/NOx taxes	**Low** (1): 0–2,000€/BEV **High** (5): > 8,000€/BEV
Annual ownership tax exemption	Total maximum amount of **annual ownership tax reductions** granted to a consumer by the government	**Low** (1): 0–20% reduction **High** (5): > 80% reduction

Source: Strategy& Analysis

Spain and Italy provide the highest government incentives to consumers, while France and poland the lowest

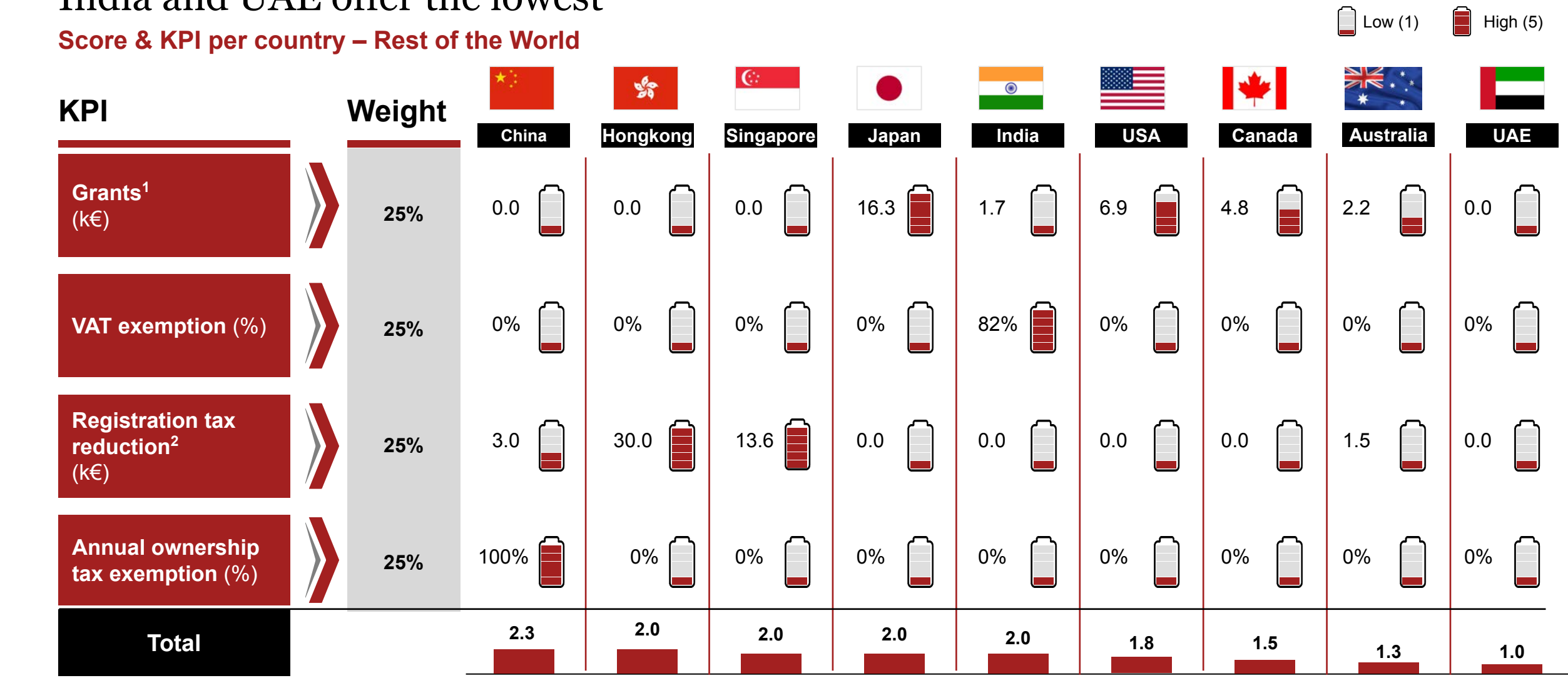
Score & KPI per country – Focus on Europe



1) Max. grant amount considered, figures do not include local grants 2) Includes only emission-related one-off-taxes for cars above 160gCO2/km (e.g. weight tax excluded); Source: European Alternative Fuels Observatory; Government websites; Acea

China and Hong Kong offer the highest government incentives to consumers, while India and UAE offer the lowest

Score & KPI per country – Rest of the World



1) Max. grant amount considered, figures do not include local grants 2) Includes only emission-related one-off-taxes for cars above 160gCO2/km (e.g. weight tax excluded); Source: European Alternative Fuels Observatory; Government websites; Acea

The Infrastructure dimension measures the availability of public charging infrastructure as well as the sources and cost of electricity

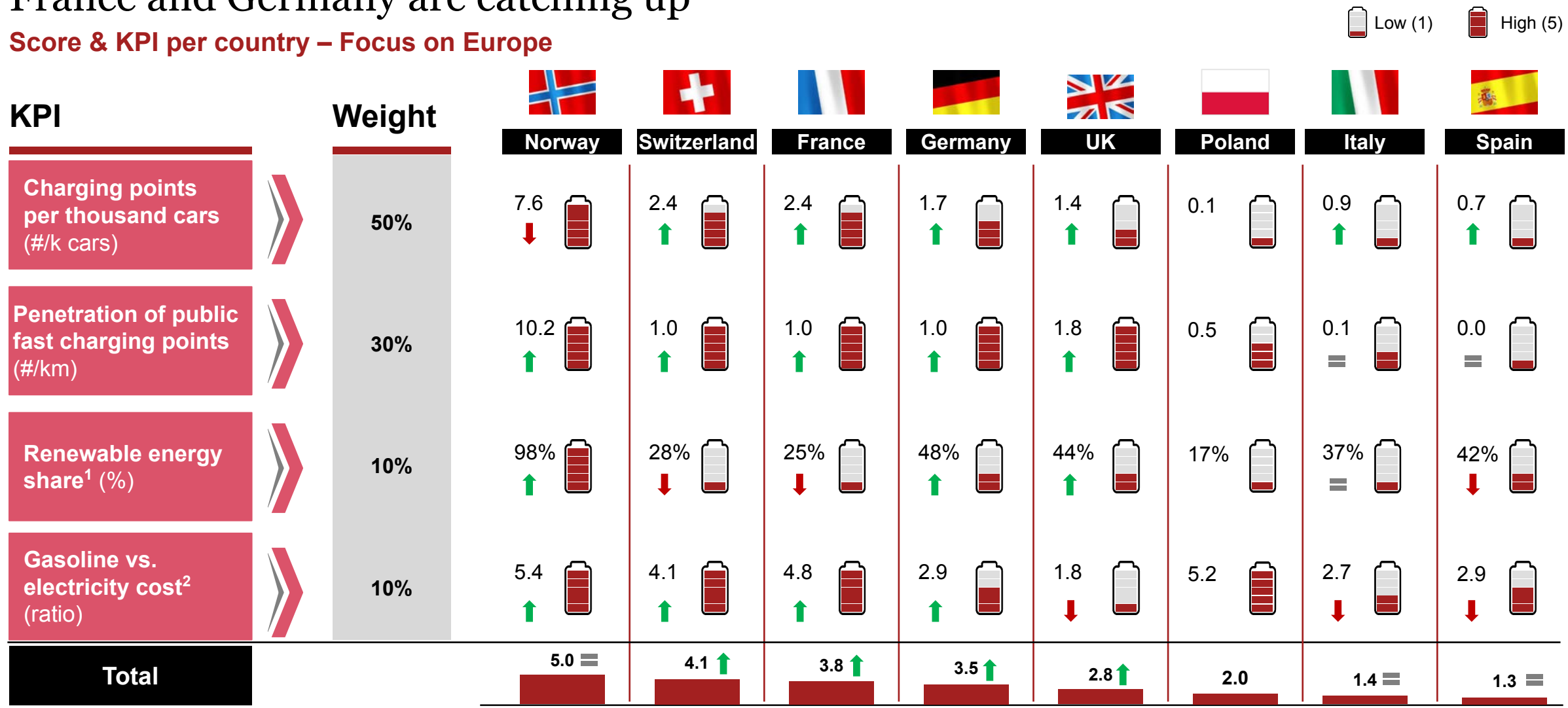
Dimension overview

KPI	Definition	Scoring
Charging points per thousand cars	Number of **public charging points** per thousand cars (total circulating EV and non-EV fleet)	**Low** (1): < = 1 **High** (5): > = 3
Penetration of public fast charging points	Ratio of **public fast charging points** (over 150 kW) per km of motorway	**Low** (1): < = 0,1 **High** (5): > = 1
Renewable energy share	Share of **renewable energy produced**[1]	**Low** (1): < = 40% **High** (5): > = 80%
Gasoline vs. electricity cost	Ratio of **driving costs**[2] per 100 km of ICE vs. BEV (considering gasoline for ICE and slow charging for EVs)	**Low** (1): < = 2,5 **High** (5): > = 3,5

1) According to IEA, the following types are included within the renewable energy category: Solar PV, wind energy, hydro energy and bio energy 2) Assuming consumption of 15 kWh or 8 litre of gasoline per 100 km

Norway is by far the most developed EV charging infrastructure, but Switzerland, France and Germany are catching up

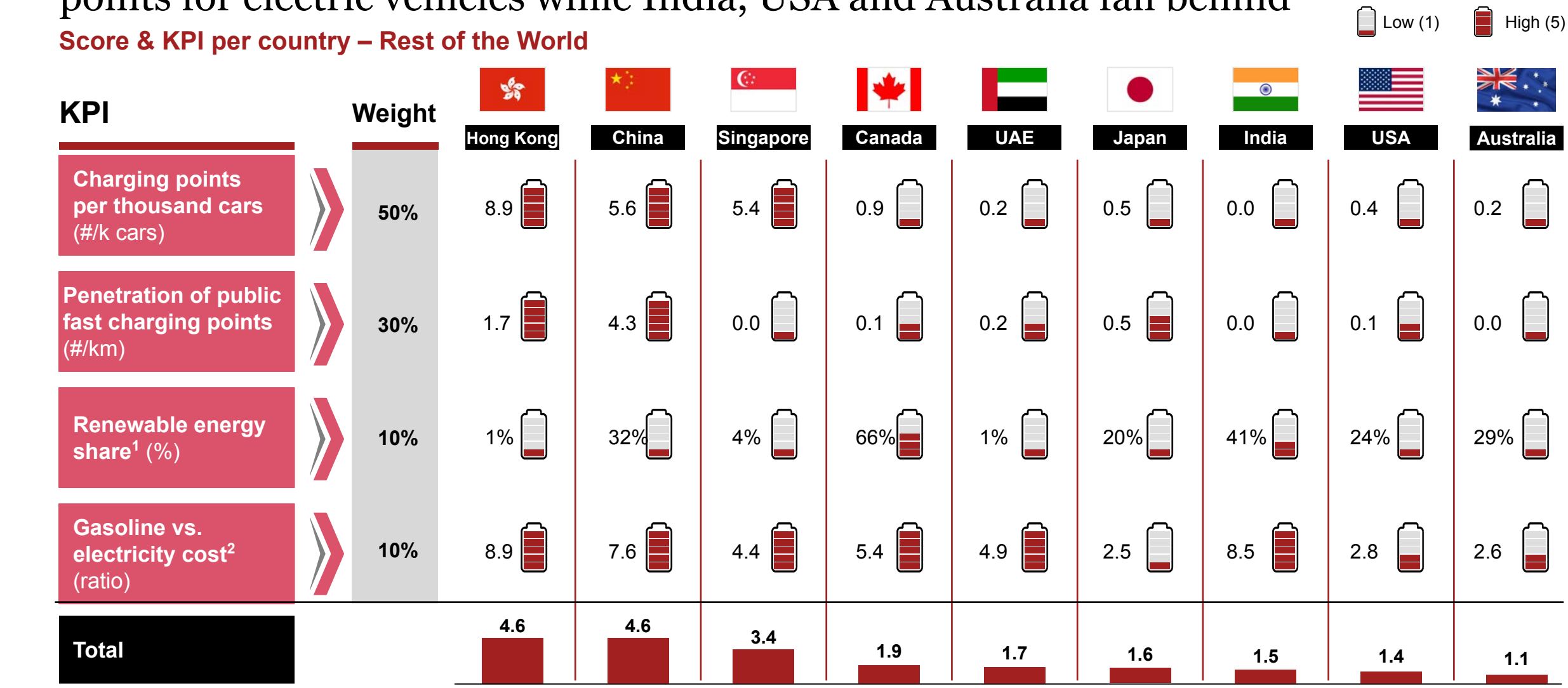
Score & KPI per country – Focus on Europe



1) According to IEA classification – Renewable sources: Solar PV, wind energy, hydro energy and bio energy 2) Assuming consumption of 15 kWh or 8 litre of gasoline per 100 km; Source: IEA, Alternative fuels observatory

China and Hong Kong and Singapore have the highest penetration of charging points for electric vehicles while India, USA and Australia fall behind

Score & KPI per country – Rest of the World



1) According to IEA classification – Renewable sources: Solar PV, wind energy, hydro energy and bio energy 2) Assuming consumption of 15 kWh or 8 litre of gasoline per 100 km; Source: IEA, Alternative fuels observatory

The Supply dimension measures the supply of EVs and their market penetration

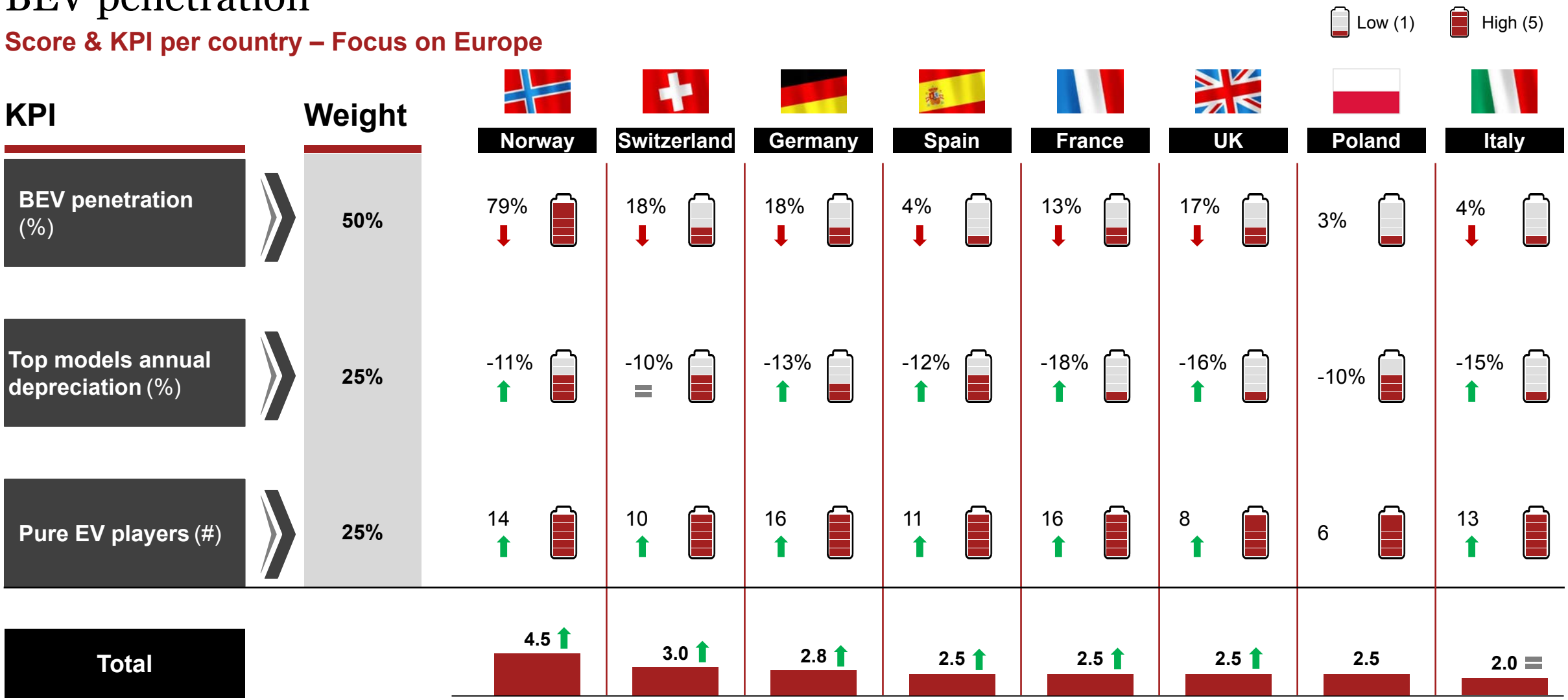
Dimension overview

KPI	Definition	Scoring
BEV penetration	Share of **BEVs based on total cars** sold (2022)	**Low** (1): < = 10% **High** (5): > = 50%
Top models annual depreciation	**Depreciation rate**[1] of top 4 selling models by country from 2018 to 2022[2]	**Low** (1): < = -15% **High** (5): > = -5%
Pure EV players	Pure **EV players**[3] **with active sales in country**	**Low** (1): < = 1,00 **High** (5): > = 5,00

1) Within the past 5 years based on reference prices (not transaction prices) 2) Reference prices for Renault Zoe, Nissan Leaf, Tesla Model S, BMW i3 on selected platforms with search terms of 1st year of registration 2018-2021 and mileage (0, 10k, 20k, 30k and above 40k km) 3) Selection of Aiways, BYD, e.GO, Fisker, Genesis, Geometry, Hiphi, Hongqi, Leapmotor, Lucid, Lynk&Co, NIO, ORA, Polestar, Rivian, Tesla, VinFast, WEY, Xpeng, Zedriv

Norway is the best supplied market while Poland and Italy seems to have the lowest BEV penetration

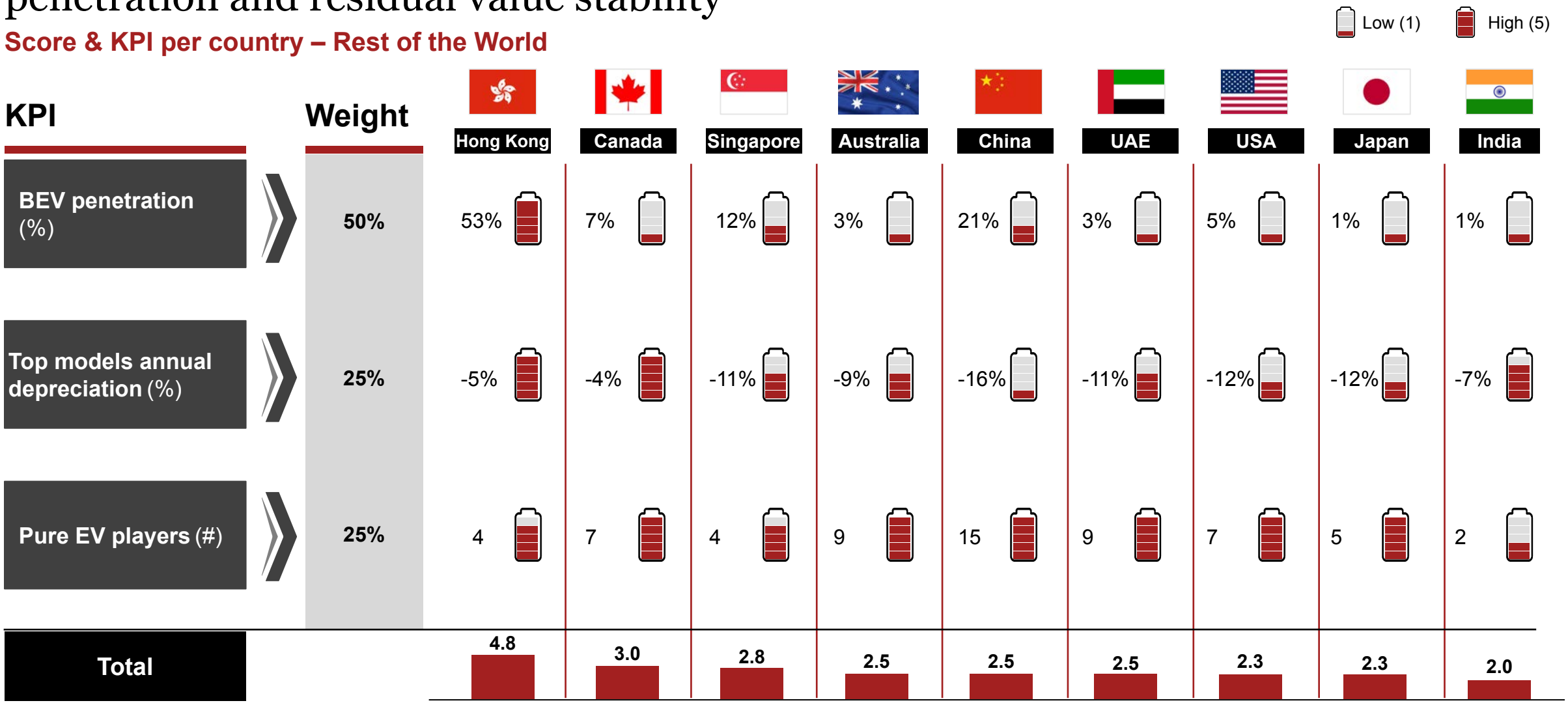
Score & KPI per country – Focus on Europe



Source: IHS Markit; Strategy& Analysis

Hong Kong lead the EV demand dimension by far thanks to a strong BEV penetration and residual value stability

Score & KPI per country – Rest of the World



Source: IHS Markit; Strategy& Analysis

The Demand dimension leverages the Strategy& eReadiness survey, drawing on first hand data

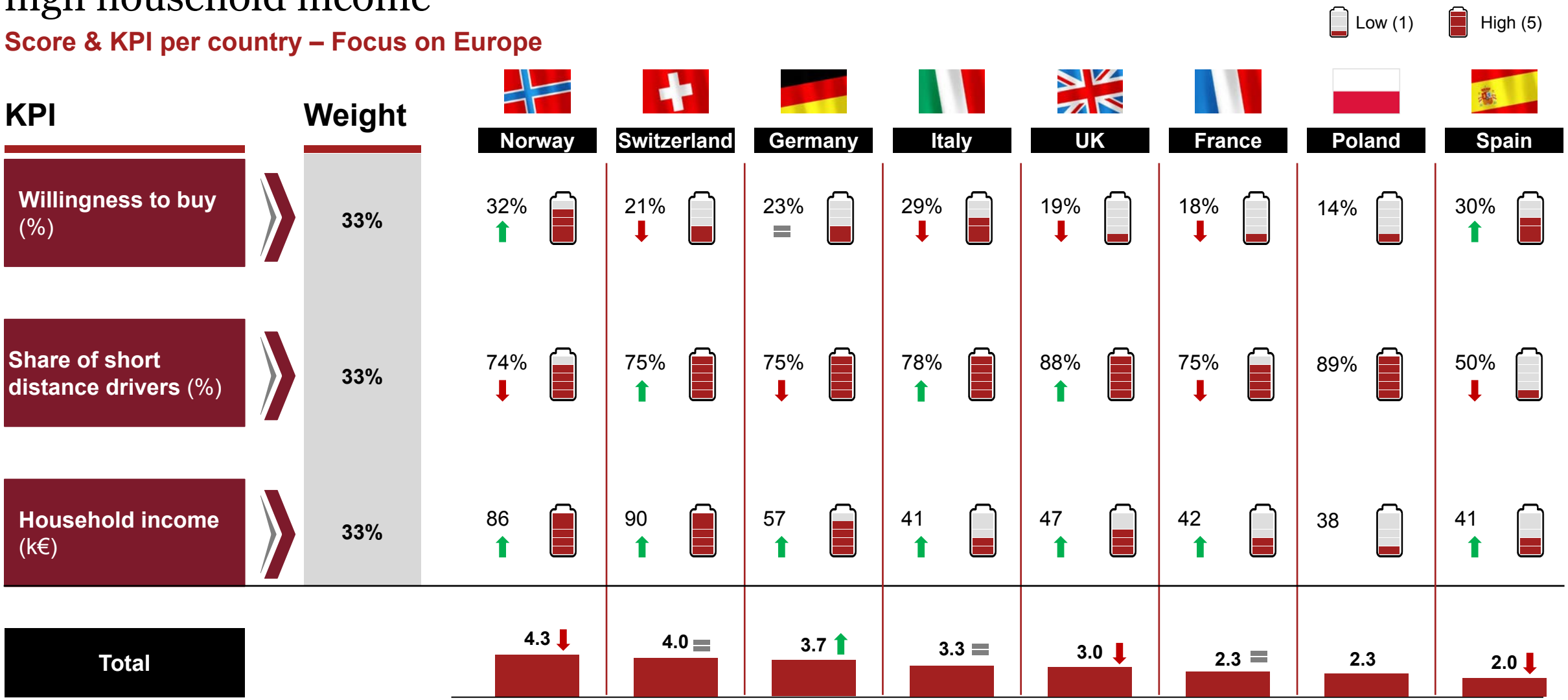
Dimension overview

KPI	Definition	Scoring
Willingness to buy	Consumer **willingness to buy a BEV** in the next two years year (% of respondents)	**Low** (1): < = 20% **High** (5): > = 35%
Share of short distance drivers	Share of respondents driving **30 km or less** per day	**Low** (1): < = 50% **High** (5): > = 75%
Household income	Average **income of consumers** respondent to the Strategy& survey	**Low** (1): < = 40 €k **High** (5): > = 60 €k

Sources: Strategy& Analysis

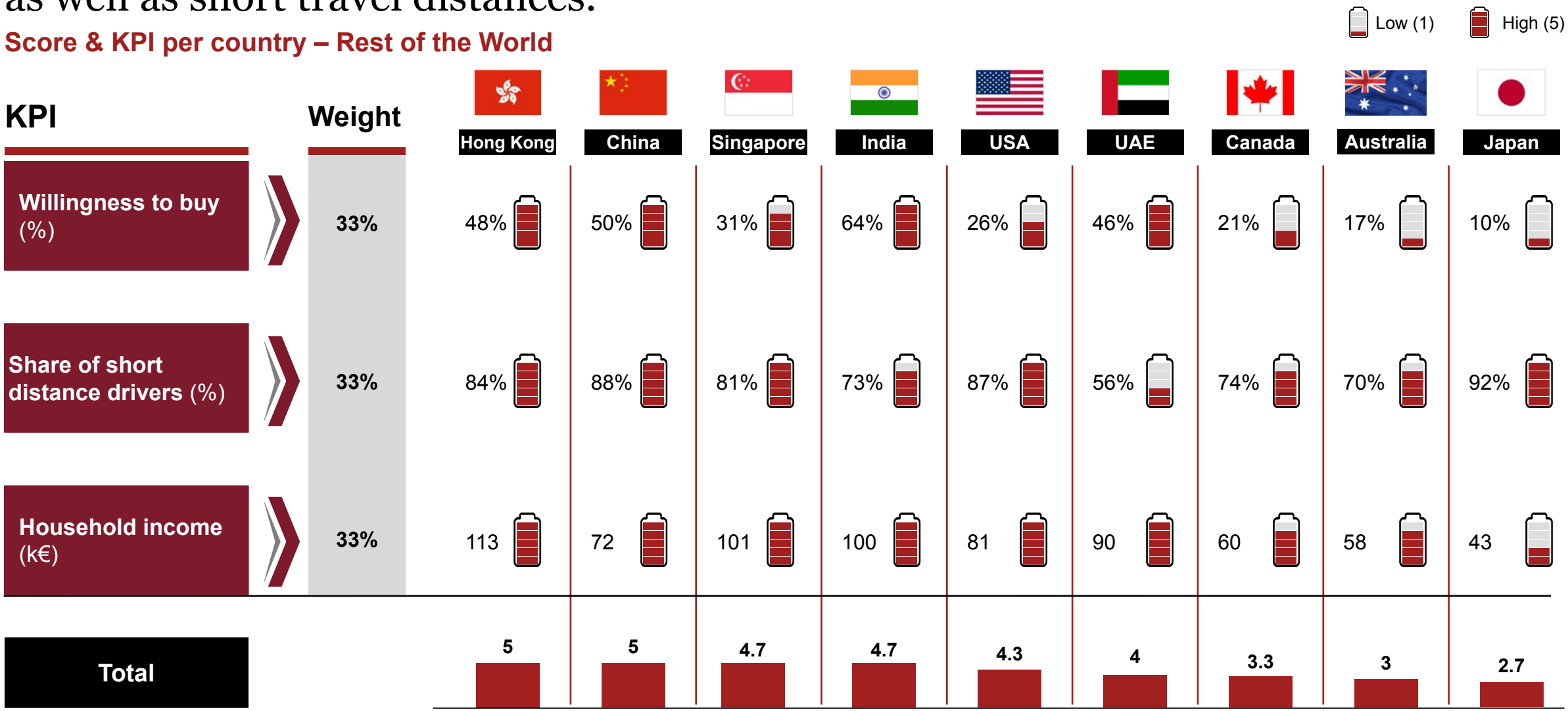
Norway lead the EV demand dimension thanks to a strong willingness to buy and high household income

Score & KPI per country – Focus on Europe



Emerging markets are characterized by a high willingness to purchase electric cars, as well as short travel distances.

Score & KPI per country – Rest of the World



Sources: Strategy& eReadiness Consumers Survey

04.

Recommendations on the way forward

We have shortlisted 5 short-term actionable improvements for e-mobility players to untap the full potential of the EV market

Recommendations for e-mobility players (1/2)

Recommended actions	Rationale	OEMs	Retailers	Utility companies & CPO	Public Authorities
Design **financially flexible offerings** that reduce upfront costs, provide additional services, and protect residual value to increase EV conversion from more hesitant prospects	• Upfront costs and low residual value are key purchasing barriers for 40% and 33% of EV prospects respectively • Majority of EV owners, in particular in APAC and NA, purchased insurance services, an after sales maintenance plan and extender warranty together with the car to ensure their peace-of-mind	✖	✖		
Build partnerships with third-party providers (including clear SLAs and incentives) to provide end-to-end support and orchestration of **home chargepoint installation** and offer **related products & services** (e.g. green energy contracts, energy storage, photovoltaic panels, integrated on-the-go charging etc.) to EV customers at point of sale	• Limited charging infrastructure knowledge (42%) and delays in process (25%) are the key issues experienced during the home charging installation • 10-40% of consumers purchased additional EV-related products and services within a short time frame after purchasing their EV.	✖	✖	✖	
Review and refresh the **used-vehicle business proposition** with pre-owned programs that leverage telematic data and include battery health certification to protect residual values and more effectively and profitably manage EV second-hand trade.	• 60% of EV Owners would be willing to consider a pre-owned EV, this is driven mainly by the lower upfront costs. • The lack of a battery state-of-health certification / warranty and the fear of reduced battery capacity are among the top barriers for 45-60% of customers.	✖	✖		

Source: Strategy&

We have shortlisted 5 short-term actionable improvements for e-mobility players to untap the full potential of the EV market

Recommendations for e-mobility players (2/2)

Recommended actions	Rationale	OEMs	Retailers	Utility companies & CPO	Public Authorities
Redesign **end-to-end customer experience** to address prospective customers' EV qualms (e.g. long or multi-day test drives including public charging experience) and effectively onboard them to EV features, educate them about options & settings, and provide EV driving guidance	• EV owners' satisfaction continues to be lower than for ICE owners (11 p.p.) – as the EV market is shifting into a mass market, new EV owners are less tech-savvy and expect support throughout the entire customer journey • Limited charging infrastructure knowledge (42%) and delays in process (25%) are the key issues experienced during the home charging installation	✖	✖		
Review processes to **grant access to relevant public spaces** suitable for public EV charging locations and **speed-up permitting approval** to accelerate for new high-power connections to prioritize charging infrastructure build up	• Only 6 out of the 18 countries analyzed is above average in terms of public charging network development with more than 2.3 points for 1,000 circulating cars • Local and national governments or their agencies have access to real estate with potential to be utilized for public EV charging			✖	✖

Source: Strategy&

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