strategy&
Part of the PwC network

eReadiness 2024

5th edition

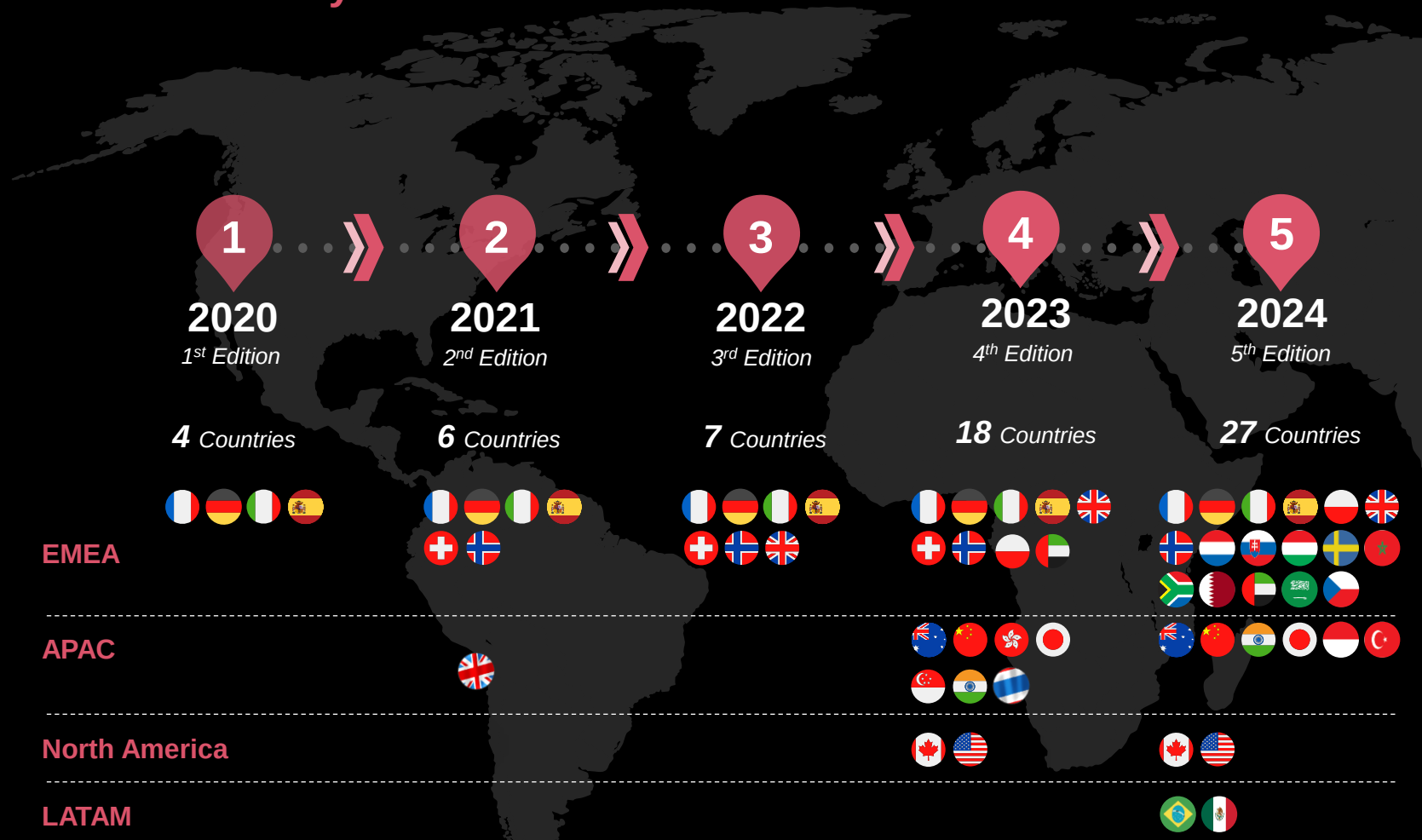
Survey Report

Customer needs and way forward

September 2024

The 5th edition of the study provides updated perspectives on the short-term development of the e-mobility business in 27 markets

About the study



Customer type
Private customers
representative of the driving population

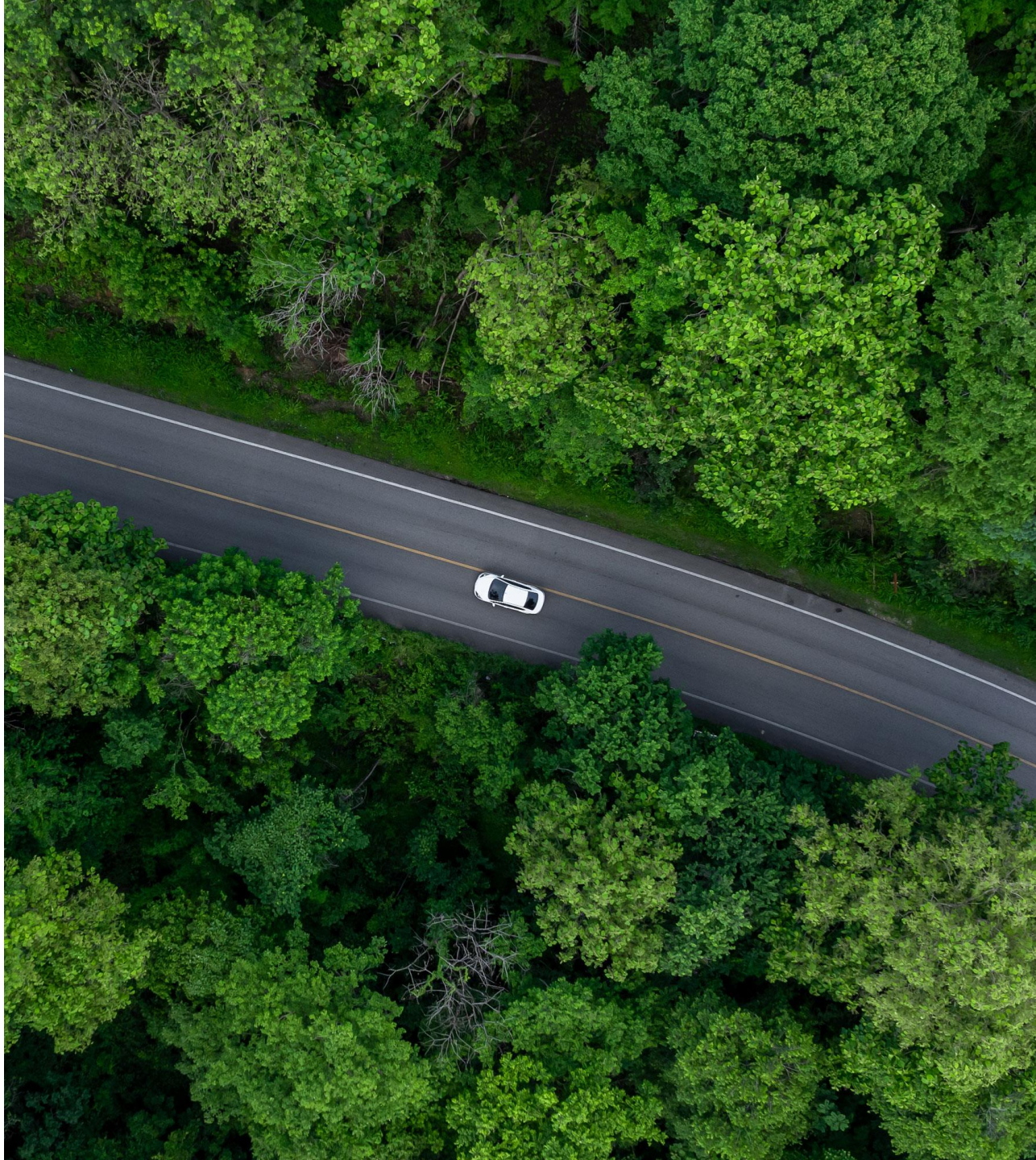
Product segment
Passenger Cars

Technology
BEV + PHEV

Survey
c. 17,000 CAWI interviews

Agenda

1. **Executive Summary**
2. Consumers viewpoint
3. eReadiness Index
4. Contacts



Key insights from the consumer research sample (1/4)

Context

- Our global survey, eReadiness, surveyed ***over 17,000 respondents in 27 countries*** to investigate their mobility needs and readiness towards Electric Vehicles (EV). Respondents have been clustered into ***EV Owners***, ***Prospects*** – declaring an intention to buy an EV within 5 years, and ***Sceptics*** – declaring no interest in EVs.
- While many countries are leading the way in the adoption of e-mobility, many others are falling behind despite previously optimistic forecasts. In the rest of the document, we assess the following key questions.

Are consumers interested in switching to EVs?

- According to our study, consumers have shown a **strong interest in e-mobility, with over 60% declaring their intention to purchase an EV within the next 5 years**. At global level, interest towards EVs is similar to last year (+1 p.p.), yet it varies quite significantly at regional level, with growing countries/ regions such as China, India, Indonesia, LATAM, Middle East and Africa demonstrating greater interest towards e-mobility (70-80% of the consumers are Prospects) than conservative countries such as Japan showing a much lower demand with only 20% of prospects.
- In Europe, the interest towards EV varies across regions, with the Nordics leading the electrification path registering the highest share of EV Owners. Southern and Central Europe display higher interest toward e-mobility compared to Eastern European countries.
- In America, the southern part of the continent declare a high propension towards EV and sustainable mobility, while USA consumers are more conservative, with 1 out of 2 not interested in switching to EVs. Canadians declare greater interest with 57% of the consumers interested in EVs.
- **Despite the high level of interest** declared by the consumers, **EV registrations are still limited, primarily due to charging duration, the uncertainty on battery lifetime and the limited range.**

Who are the current EV owners?

- **EV Owners represents 5-7% of the respondents** an differ from Prospects and Sceptics in terms of age, income and home location. EV Owners are typically **younger, higher-income males with access to private parking facilities**.
- The age gap between EV owners and sceptics is greater in countries like Australia, North America and Japan, where interest in e-mobility is lower, with a difference of approximately 12-15 years, compared to 5-7 years in other countries.
- **Private parking and charging solutions are crucial for EV Owners**, as **65% of them primarily rely on private solutions to charge their vehicle**. Such reliance on private charging solutions is even higher in countries like Australia (88%) and Indonesia (72%) due to the early stages of public charging infrastructure deployment.

Key insights from the consumer research sample (2/4)

How satisfied are they with their current EV?

- The overall **satisfaction level among current EV owners is high**, with approximately 93% of them expressing satisfaction with their cars. The main factors contributing to their satisfaction are consistent across geographies and include **charging time in line with their expectations** (leveraging also the possibility to recharge overnight at home)**, driving experience, and lower operating costs**.
- There are few differences in terms of satisfaction reasons, Europeans value more the lower operating costs of driving electric, while North America and Middle East customers appreciate the charging speed.
- **Eastern & Southern European countries and Japan show the lowest satisfaction level**, with c. 75-80% of the customers being either completely or mostly satisfied. The primary reasons for dissatisfaction in these countries relates to the limited availability of public charging infrastructure, the reduced performance in adverse weather conditions as well as the time to charge the vehicle.
- In terms of loyalty towards e-mobility, more than two third of EV owner would not switch back to ICE, however **approximately 1 out of 3 would consider returning to an ICE** vehicle driven by the desire of a longer driving range, especially in those countries such as Australia and Middle East where the driving distances are higher and / or the weather conditions impact driving range.

How is the used EV market?

- The **used EV market is still in its early stage** in most regions with only 10% of the respondents owning a used car. The outlook for used EV is positive, with **30-50% of the surveyed EV owners willing to consider a used vehicle** as their next car, particularly in those countries with a relatively lower available income (e.g. Eastern Europe, India and Latam).
- **Key barriers** to buying an EV include concerns on the **reduced battery performance**, and the **lack of certification on battery state of health** (SoH). Regarding SoH, approximately 60% of the surveyed EV owners reported experiencing **battery degradation after 8+ years of ownership, with only 7% reporting a SoH lower than 75% compared to the initial battery capacity.**

Who are the next EV customers?

- **EV Prospects**, constituting **62%** of the respondents, share some similarities with current owners, however they **generally have a lower income** (approximately 20% lower) and **limited access to private parking**.
- The **lack of private parking is a key barrier for prospects** when considering the purchase of an EV **as charging duration and the limited availability of public charging infrastructure are among the key concerns.** In particular, in Europe and the Middle East the gap in parking availability between EV owners and Prospects is around 15-20 p.p. gap, resulting in higher demand of public charging infrastructure from Prospects.
- …

Key insights from the consumer research sample (3/4)

Who are the next EV customers?

- Our survey identified 5 personas among prospects based on their inner beliefs: **Dreamers, Tech Enthusiasts, Luxurious, Mainstream and Frugal** (*see page 50 for details*).
- Of the 5 identified personas, the **Tech Enthusiasts and the Dreamers are most inclined to purchase EVs** accounting for 30-50% of demand, depending on the region.
- In growing countries such as **India, China, and the Middle East**, the majority of potential buyers is represented by **Tech Enthusiasts**, constituting between 40-50% of the demand.
- In **Europe and North America,** the main prospect group is represented by the **Mainstream**, who show a growing interest in buying EV vs. last year results with almost 60% of them interested in purchasing an EV. This **shows a shift of the EVs from an early adoption phase towards a potential mass market, particularly in these countries.**

What makes them willing to consider an EV?

- Key **elements to consider switching to an EV are the fuel economy**, the **convenience of recharging at home as well as the reduced environmental impact.**
- **Fuel economy** is particularly important for consumers in both North and South America as well as in Australia and Indonesia, being selected as the main driver of choice from over 70% of the respondents.

Who are the sceptics and what is blocking them from considering and EV?

- Similar to the previous editions of the study, **31% of the surveyed consumers expressed no interest in buying an EV within the next five years**. Countries such as Japan, Australia and Eastern European ones present a higher level of sceptics compared to other countries included in the study, respectively 74%, 46% and 46%.
- While most of the **key barriers are common across different regions, such as long charging time, uncertainty about the battery lifetime and limited range**, some consumers raised specific concerns. For instance, consumers in Northern European countries are more concerned about the lower **performance of batteries in cold weather conditions**, while Middle East and LATAM ones are more concerned about **battery safety.**

Key insights from the consumer research sample (4/4)

How to foster EV adoption?

- From our survey, a strong interest in the e-mobility emerges, yet it is not fully translated into sales volume. In order to promote the adoption of EVs, each player in the mobility ecosystem plays a strategic role.
- **Vehicle pricing, Total Cost of Ownership (TCO)** and new ownership models are paramount to EV adoption as lower cost vehicles and **smaller segments (B and C)** are the most sought after by Prospects, accounting for up to 75% of the demand. Furthermore, vehicle cost being higher than ICE vehicles, is among the top 5 reasons not to consider an EV. Approx 15% of the surveyed consumers, would be interested in considering a subscription scheme, which would result in a lower initial cost to enter in the e-mobility.
- **Government incentives** are an effective way to foster EV adoption, especially in those countries with a lower readiness towards e-mobility – once the market is picking up, governments reduce the magnitude of their incentives.
- **Widespread availability of charging infrastructure** is an enabler for the transition towards a mass e-mobility. While Mainstream prospects are growing their intention to buy, the limited availability of private parking and lack of a public charging network are barriers for the adoption. Half of the surveyed consumers would consider acceptable a charging time lower than 30 mins.
- **Multi-modal mobility solution** aiming to integrate private and public mobility, such as park-and-ride solution with slow chargers, are an effective way to promote mobility shift from “car-only” journey to a combination of vehicles.

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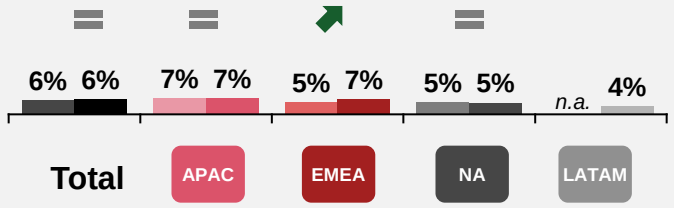
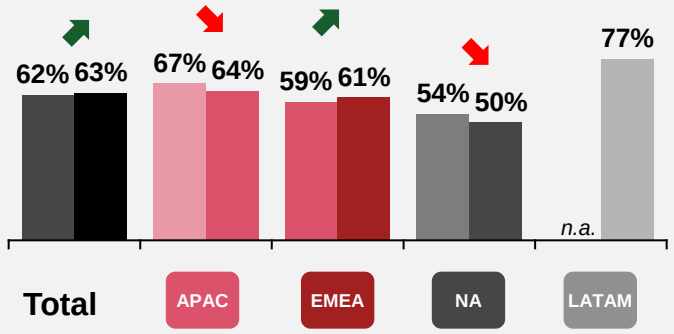
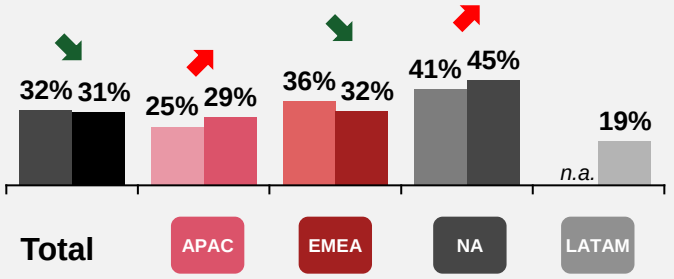
Consumers have been grouped into 3 main clusters within 4 regions: EV Owners, EV prospects and EV sceptics

Consumer survey – Clusters and investigation areas

16,778 respondents

Vs. 2023

	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	• EV Owners profile • Customer journey and usage habits	• Personas and distinctive traits • Key reasons to buy	• EV sceptics profile and distinctive traits • Key reasons 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

EV Owners, prospects, and sceptics exhibit distinct characteristics in terms of income, mobility requirements, and demographic profiles

Consumer survey – Cluster profiles (1/2)

16,778 respondents

	1 EV Owners	2 EV prospects	3 EV sceptics
What is your annual gross income?	*€ 94k*	*€ 75k*	*€ 47k*
What is your age?	*41 years*	*41 years*	*48 years*
What is your gender?	**51%** *male*	**52%** *male*	**45%** *male*
Where do you live?	**78%** *city center*	**78%** *city center*	**60%** *city center*
Do you have a private parking spot at home?	**73%** *yes*	**57%** *yes*	**63%** *yes*

Source: Strategy& analysis on feedback from consumer survey

EV Owners, prospects, and sceptics exhibit distinct characteristics in terms of income, mobility requirements, and demographic profiles

Consumer survey – Cluster profiles (2/2)

16,778 respondents

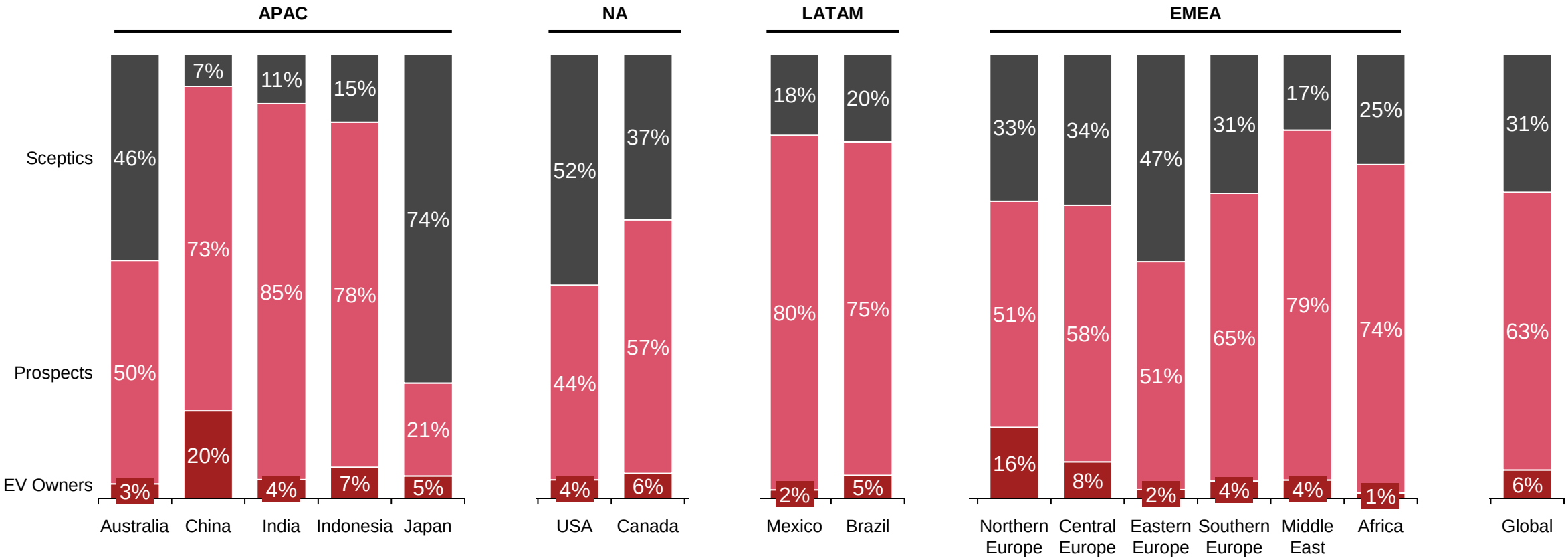
	1 EV Owners	2 EV prospects	3 EV sceptics
Do you commute with a car?	**93%** *yes*	**87%** *yes*	**85%** *yes*
Do you combine the car with other means?	**61%** *yes*	**53%** *yes*	**43%** *yes*
How many days per week do you commute?	***4.3*** *days*	***4.2*** *days*	***3.3*** *days*
How many km do you commute daily?	***24*** *kms*	***27*** *kms*	***21*** *kms*
What is your typical car tenure?	***5.5*** *years*	***7.7*** *years*	***10.6*** *years*

Source: Strategy& analysis on feedback from consumer survey

Japan and the USA have a higher percentage of skeptics, whereas Northern Europe and China have a higher percentage of EV owners

Consumer survey – Cluster profiles

\# *16,778 respondents*



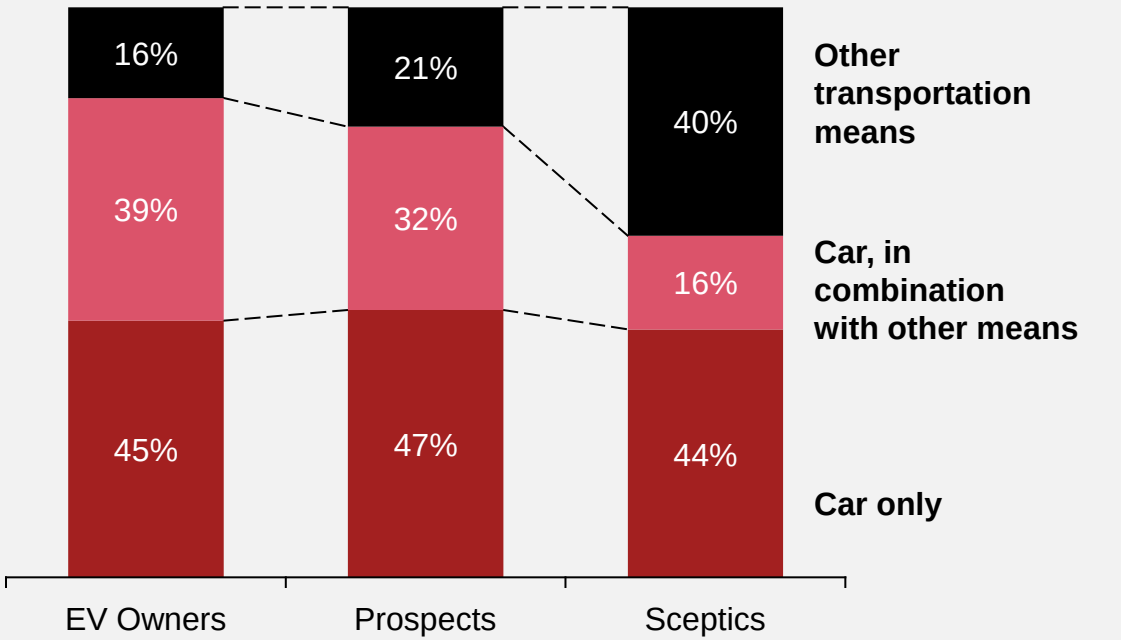
Source: Strategy& analysis on feedback from consumer survey

EV Owners commute primarily with their car and and are more likely to utilize multimodal solutions in comparison to sceptics

Mobility needs – Commuting

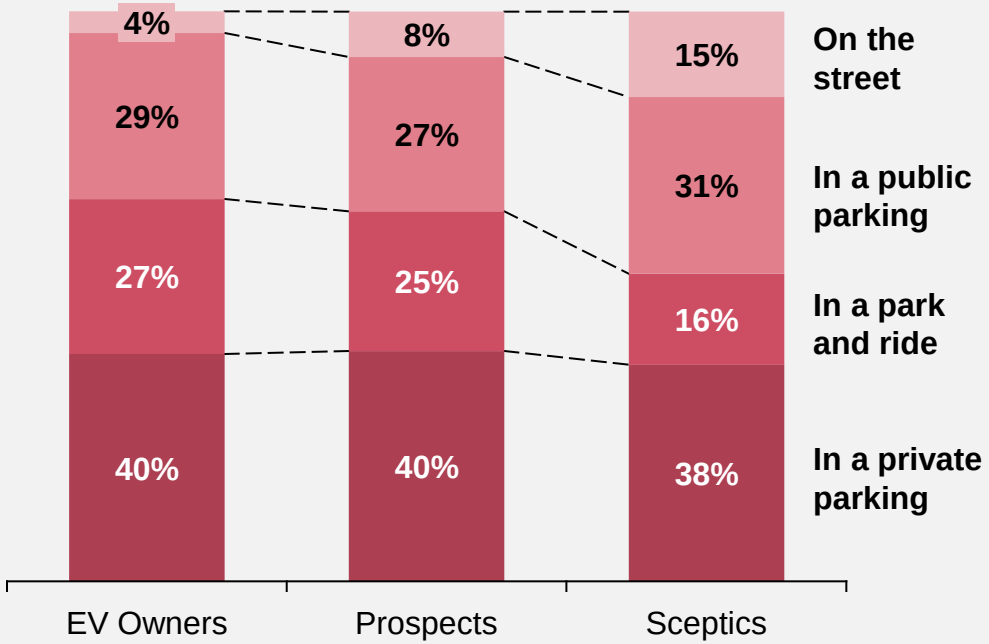
Which of the following means do you use to commute?

16,778 respondents



Where do you typically park your car when you switching mean?

4,798 respondents



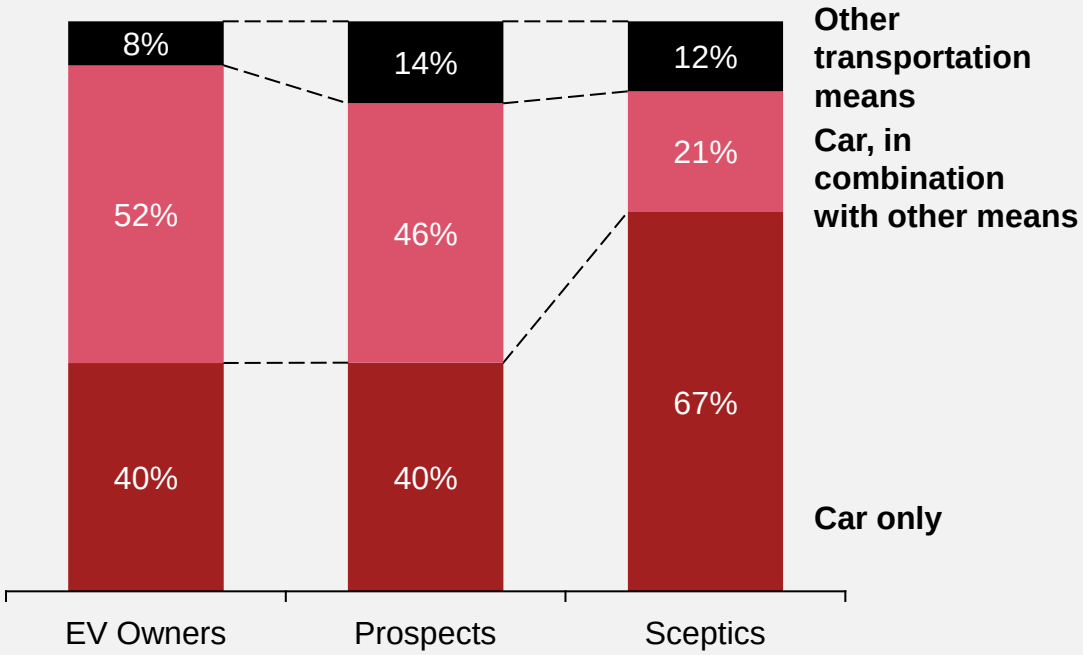
Source: Strategy& analysis on feedback from consumer survey

During leisure time, the role of multimodality becomes even more prominent across all clusters

Mobility needs – Free time

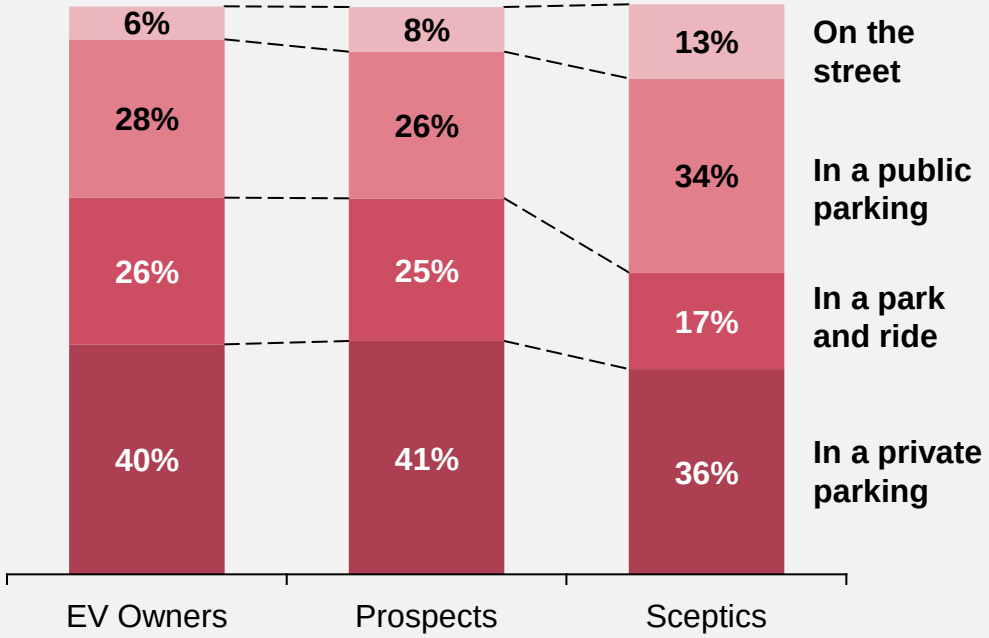
Which of the following means do you use during your free time?

16,778 respondents

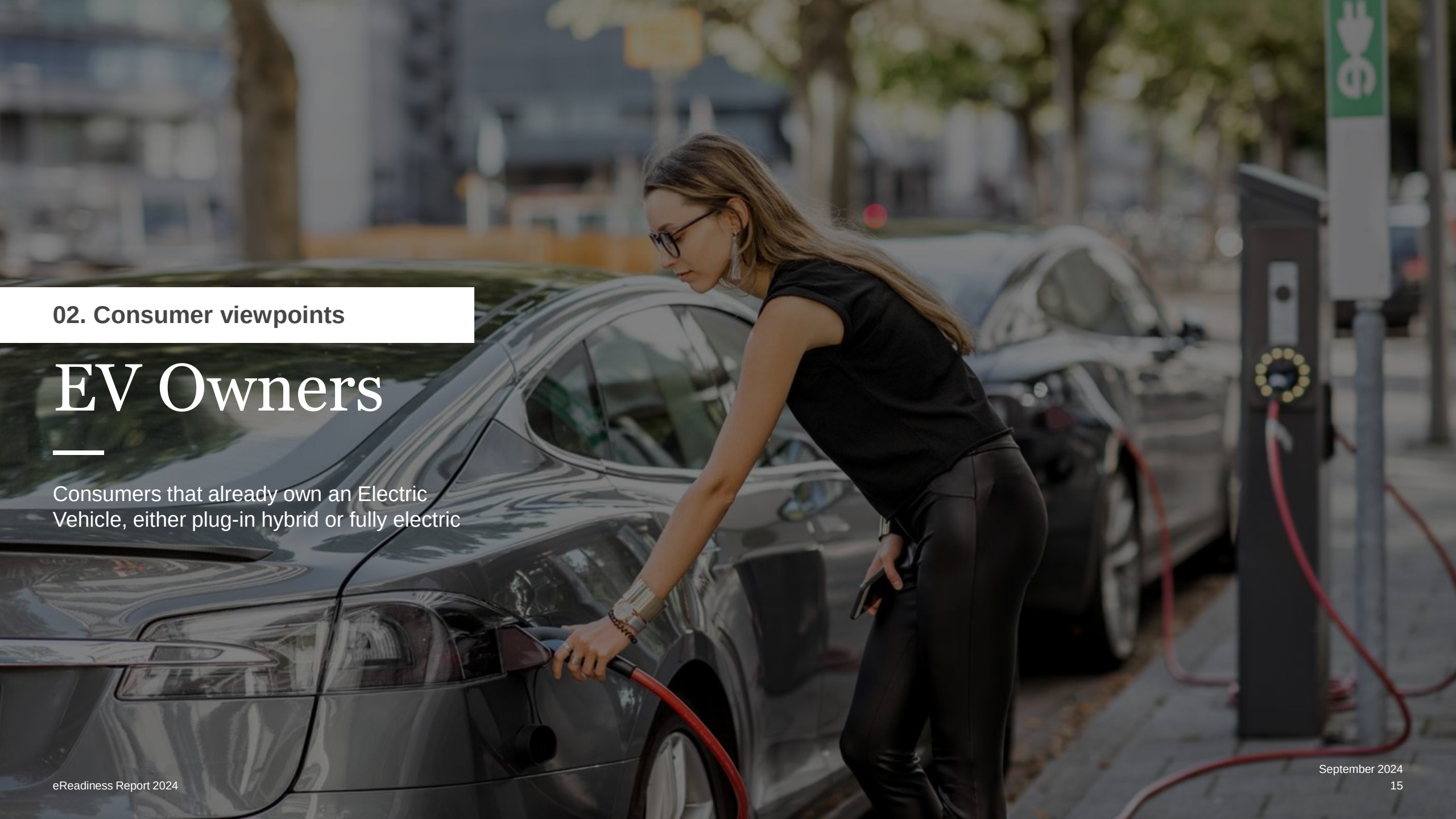


Where do you typically park your car when you switching mean?

6,157 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 demonstrate notable differences worldwide, reflecting varying stages of maturity in the adoption of EVs

EV Owners – Regional differences (1/2)

1,055 respondents

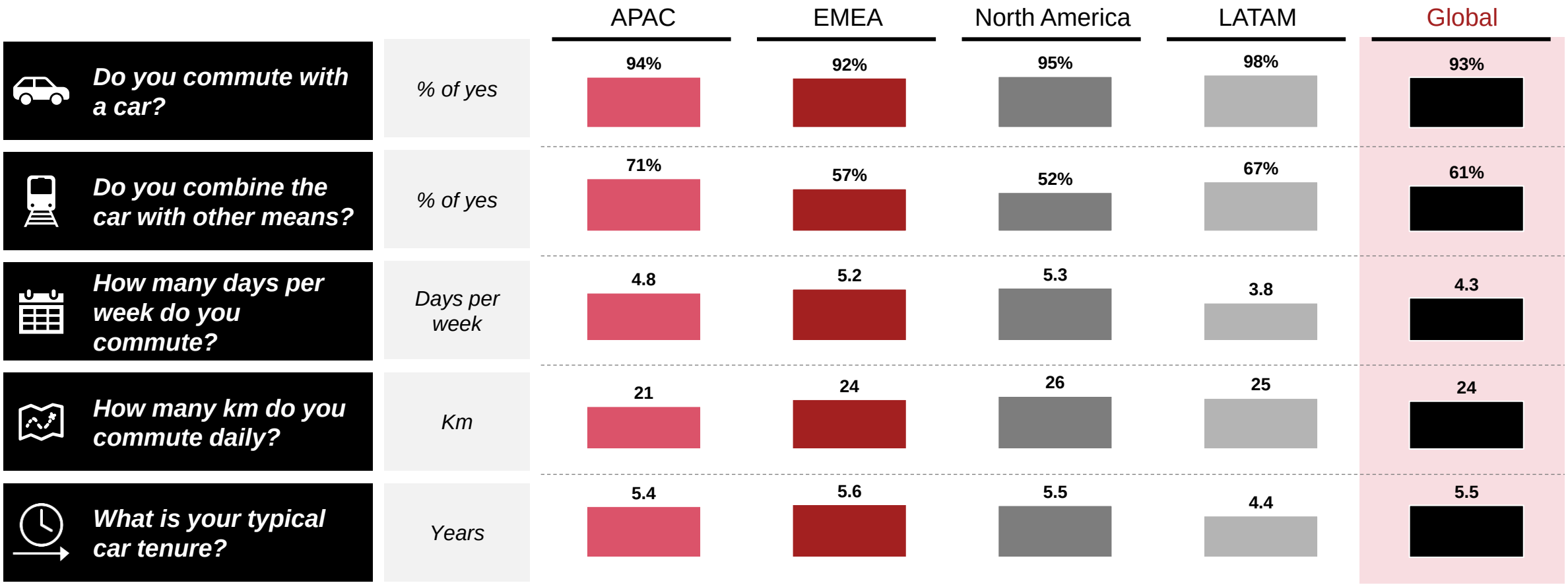
		APAC	EMEA	North America	LATAM	Global
What is your annual gross income?	Thousand €	109.6	83.0	102.6	88.2	93.8
What is your age?	Years	39	42	41	37	41
What is your gender?	% of male	48%	53%	51%	29%	51%
Where do you live?	% of city center	93%	70%	91%	94%	78%
Do you have a private parking spot at home?	% of yes	68%	75%	75%	71%	73%

Source: Strategy& analysis on feedback from consumer survey

EV Owners demonstrate notable differences worldwide, reflecting varying stages of maturity in the adoption of EVs

EV Owners – Regional differences (2/2)

1,055 respondents

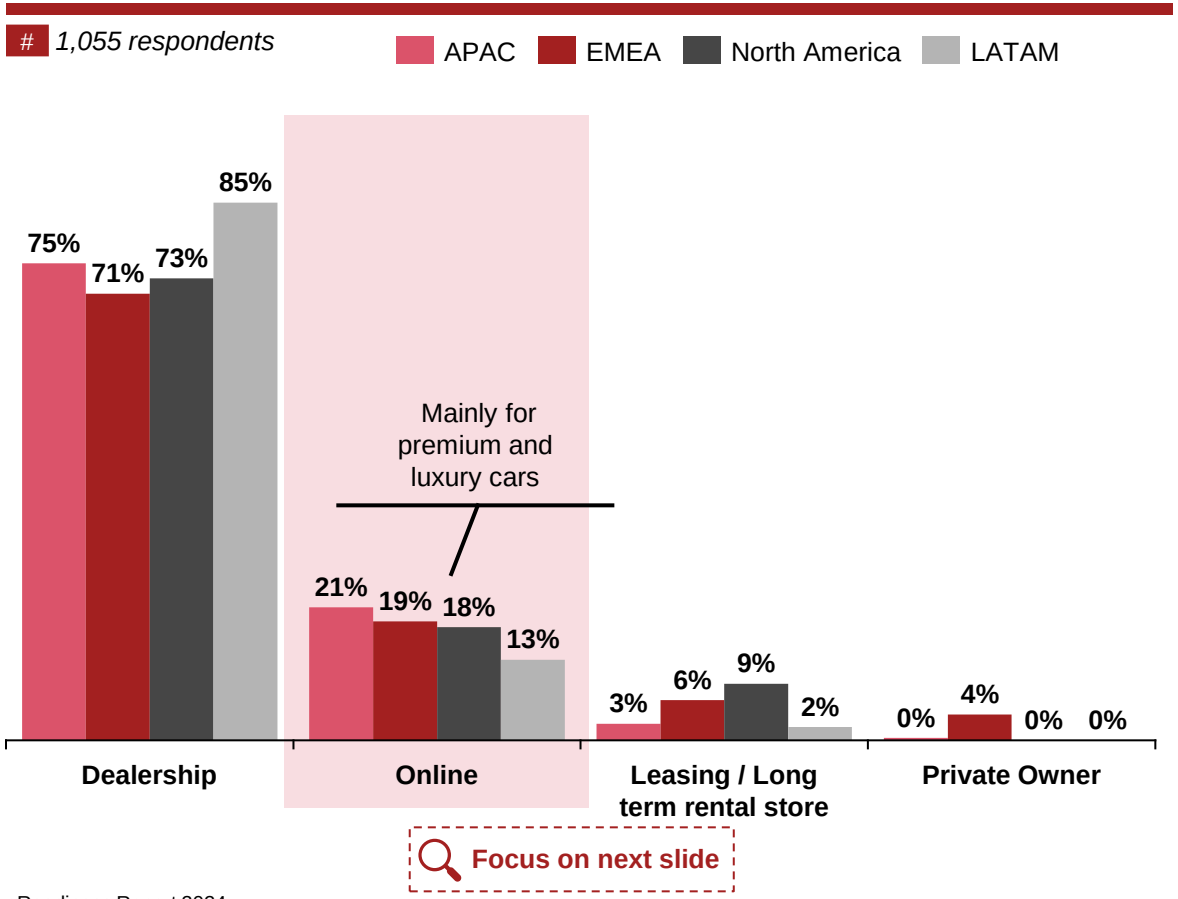


Source: Strategy& analysis on feedback from consumer survey

Dealerships remain the primary source for buying EVs, but online platforms are increasingly popular, especially for premium brands

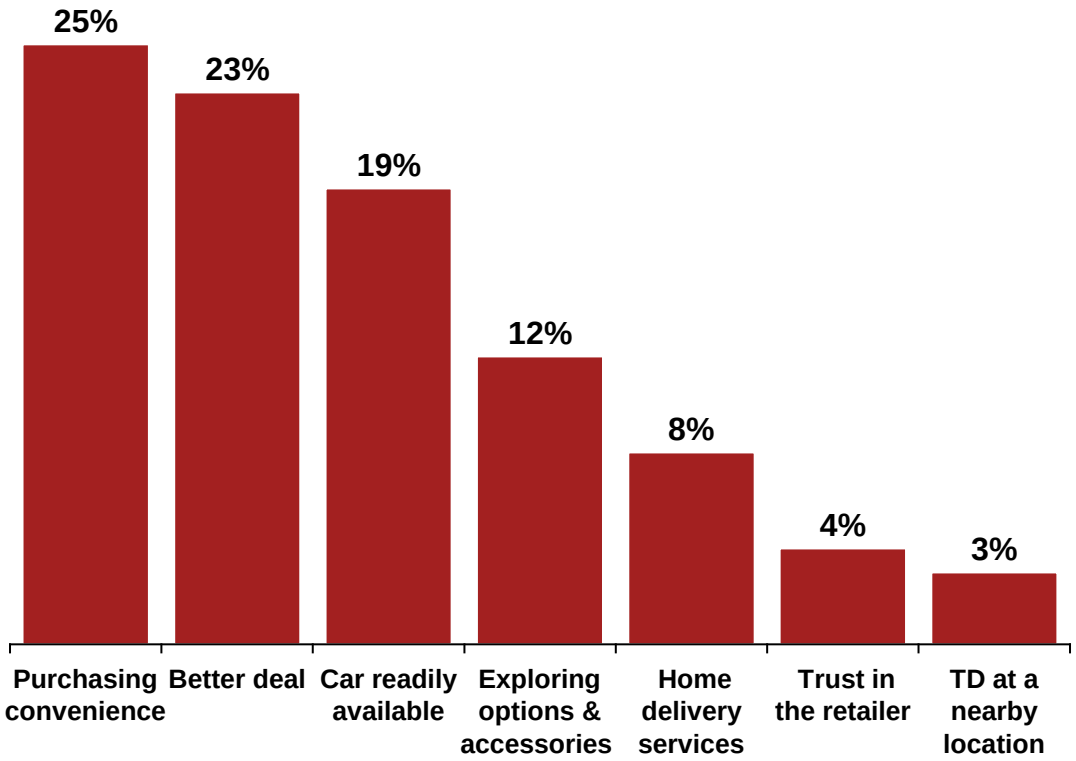
Purchase method

Where did you buy it?



Focus on next slide

Main online purchasing criteria



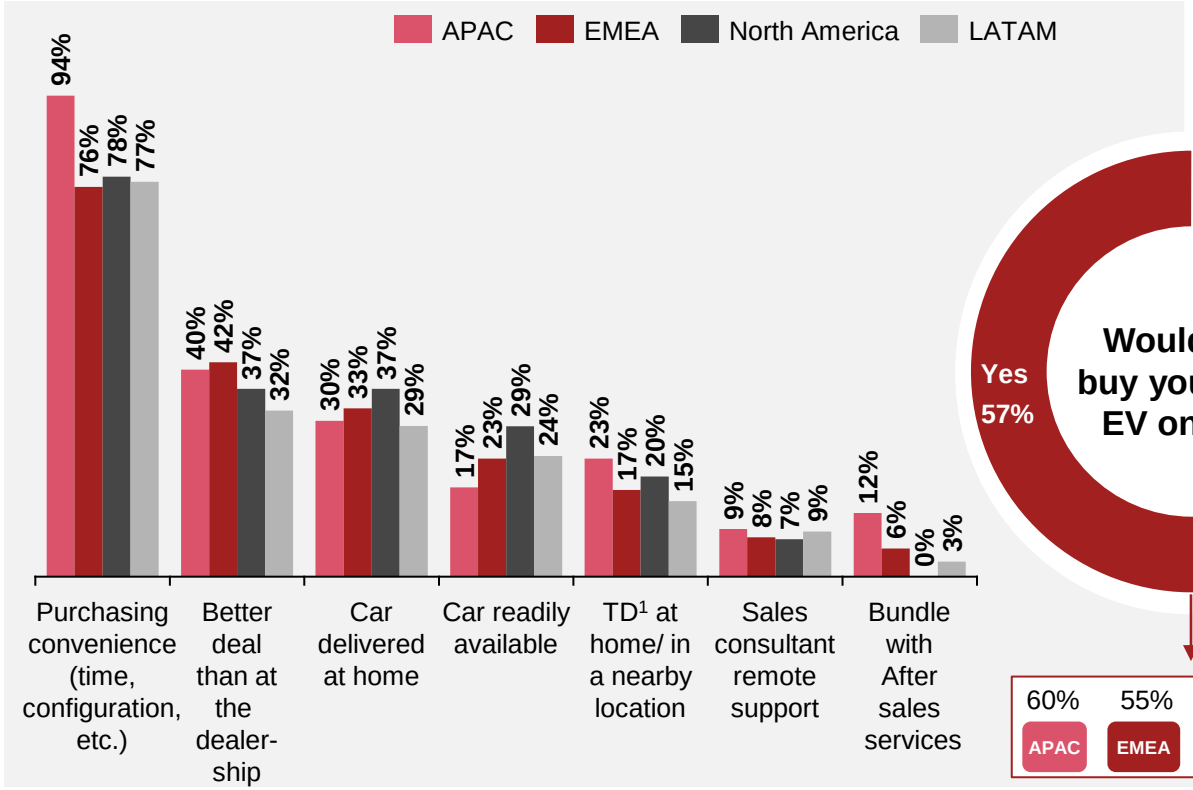
Note: percentages may not total 100% due to rounding; 1) TD: Test Driver
Source: Strategy& analysis on feedback from consumer survey

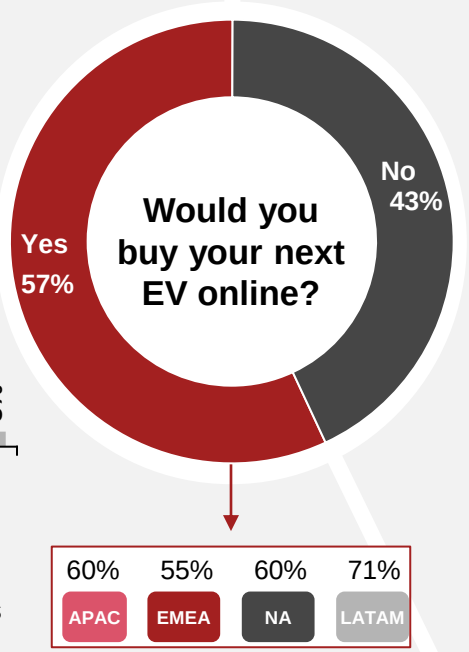
57% of EV Owners would purchase their next car online due to convenience, price, and vehicle availability

Online purchase intention

What are the main reasons to buy an EV online?

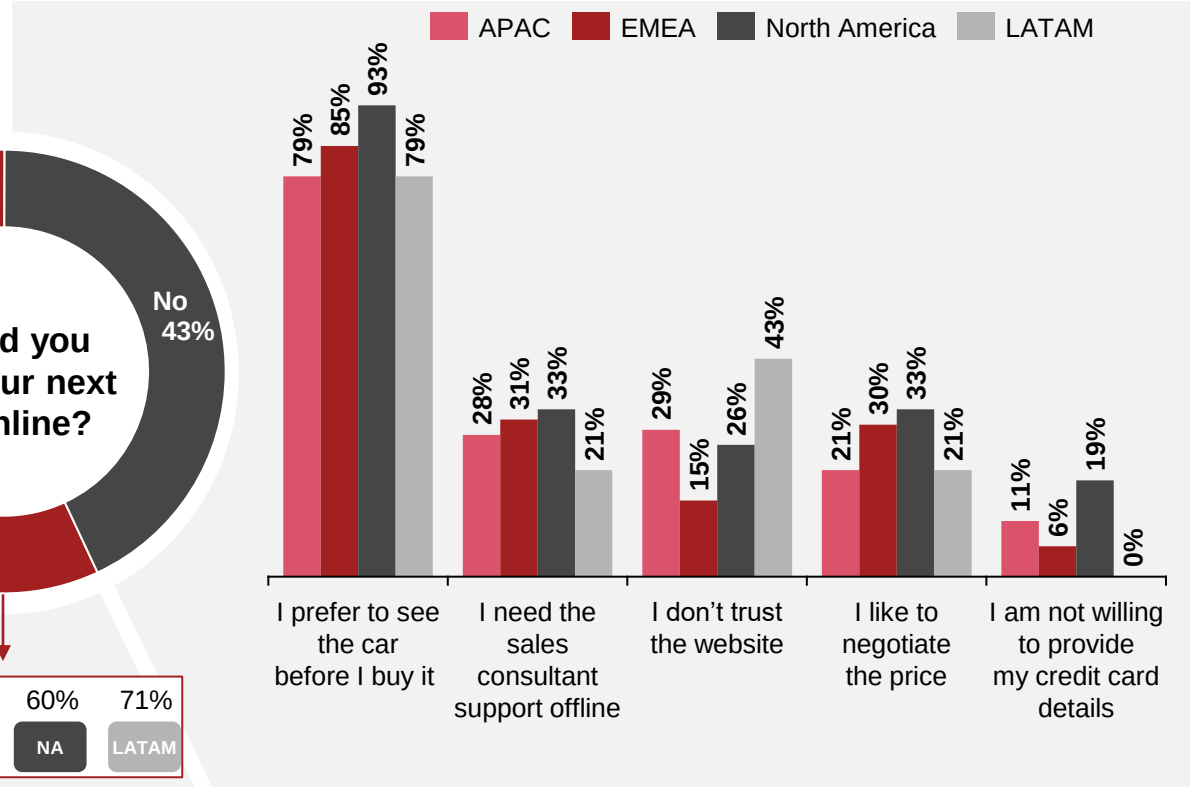
1,325 respondents – Multiple choice





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

776 respondents – Multiple choice

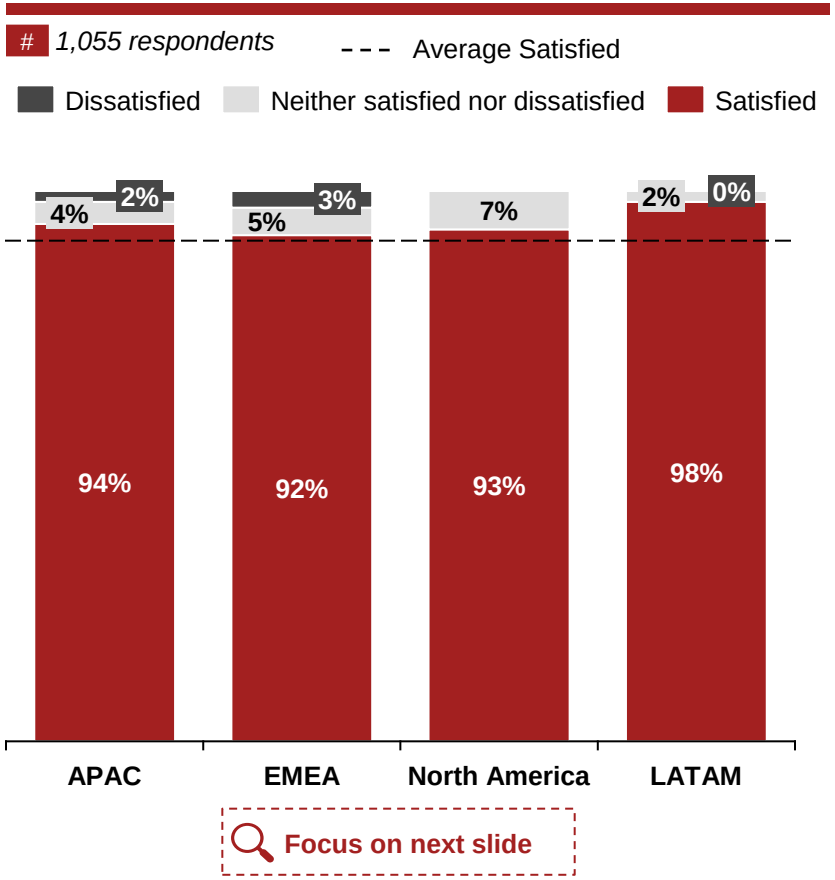


1) TD: Test Drive
Source: Strategy& analysis on feedback from consumer survey

EV Owners' satisfaction with their current car is high and mainly driven by the charging duration, driving experience and lower costs

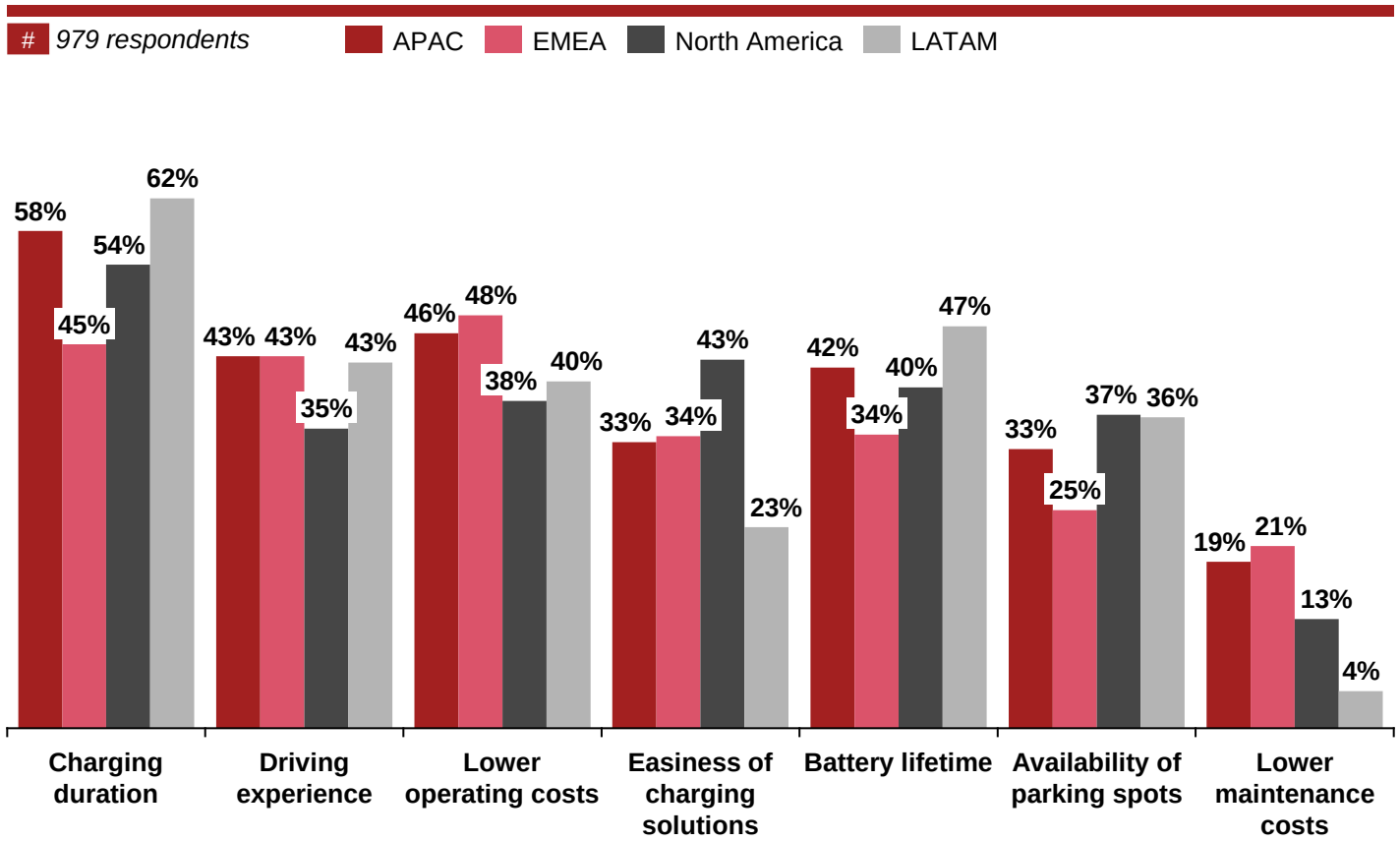
Customer satisfaction – Focus on product

How satisfied are you with your current EV?



Focus on next slide

What are the main drivers of your satisfaction?



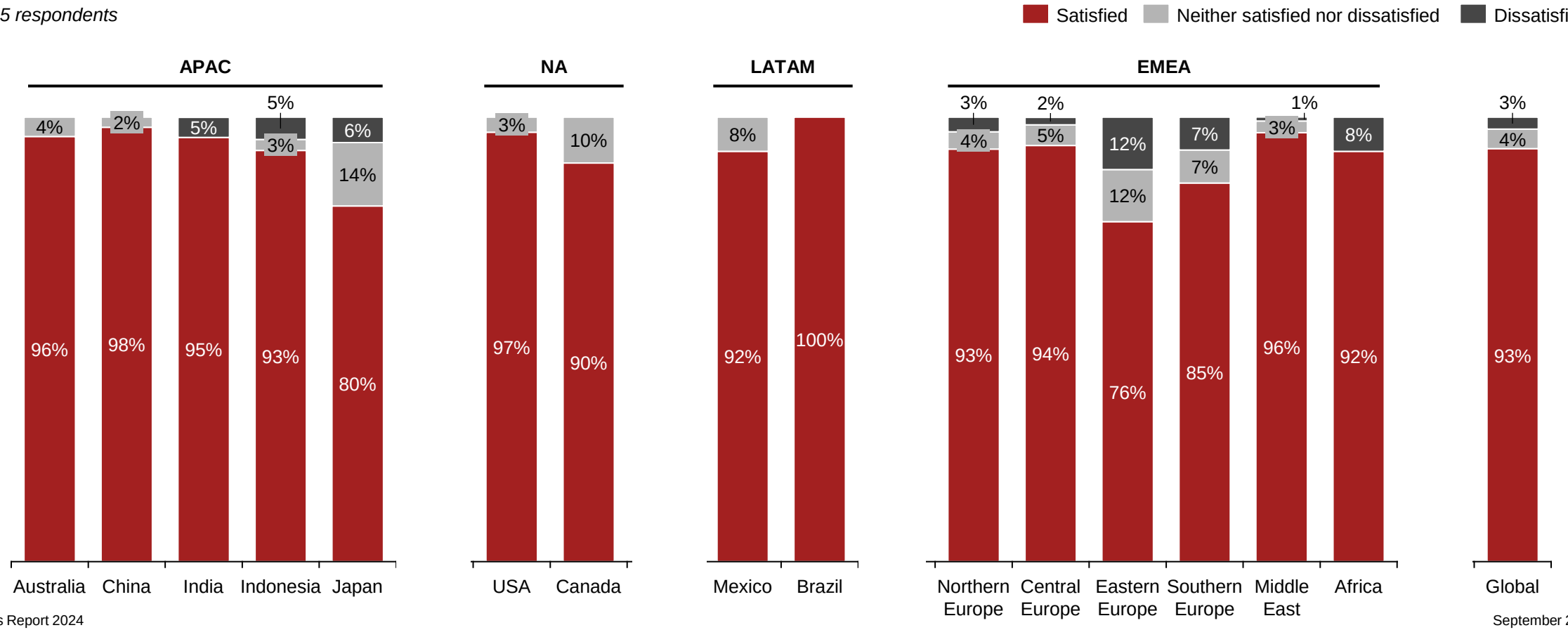
Source: Strategy& analysis on feedback from consumer survey

EV Owners' satisfaction is high across all countries, except for Japan, Eastern and Southern Europe and Canada

Customer satisfaction – Focus on product

How satisfied are you with your current EV?

1,055 respondents

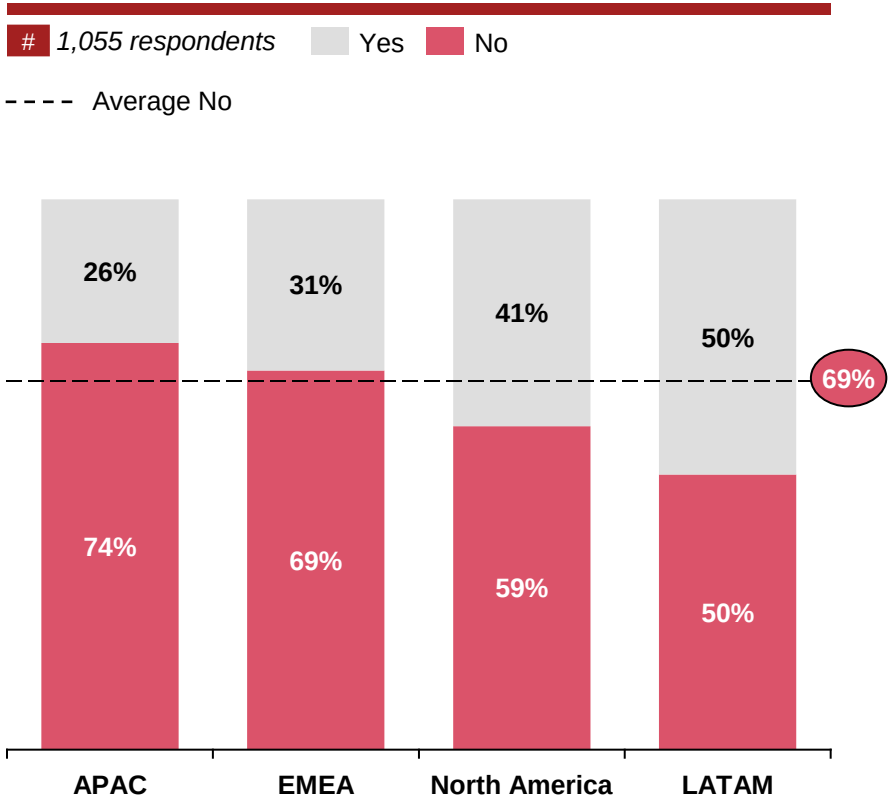


Source: Strategy& analysis on feedback from consumer survey

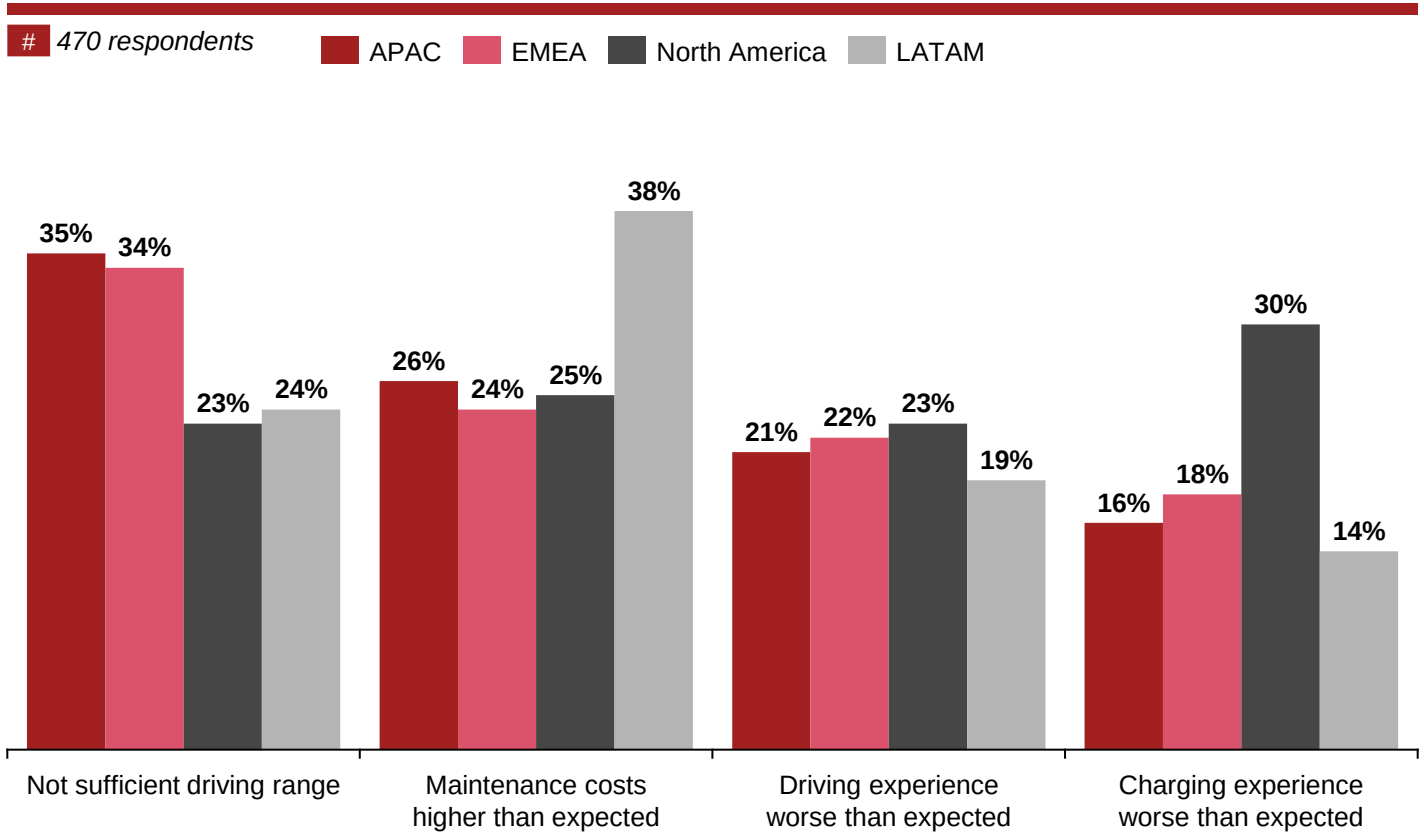
Despite their satisfaction, 31% of EV owners would consider reverting to ICEs due to limited range and higher-than-anticipated costs

Customer satisfaction – Focus on product

Would you switch back to ICE?



What are the main reason to switch back to ICE?



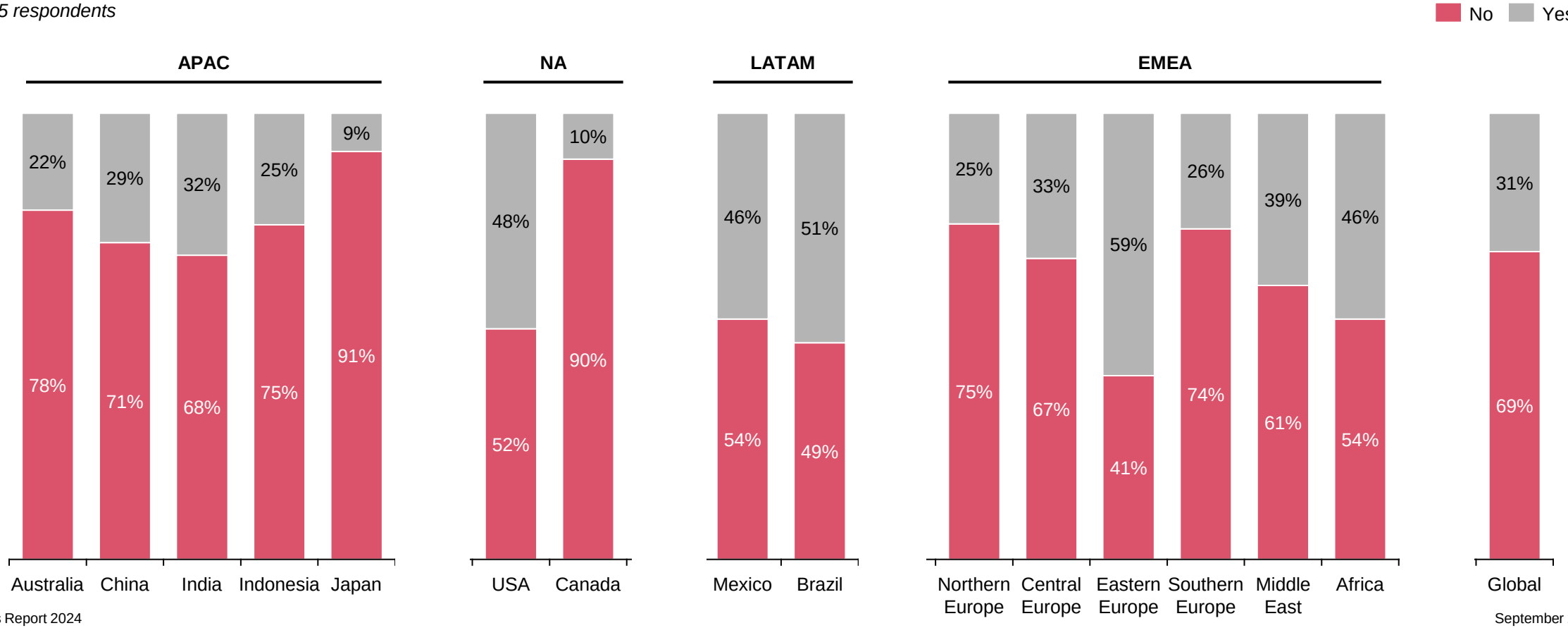
Source: Strategy& analysis on feedback from consumer survey

Japan and Canada have the lowest share of EV Owners willing to revert to ICE, while USA, LATAM and Eastern Europe have the highest

Customer satisfaction – Focus on product

Would you switch back to ICE?

1,055 respondents



Source: Strategy& analysis on feedback from consumer survey

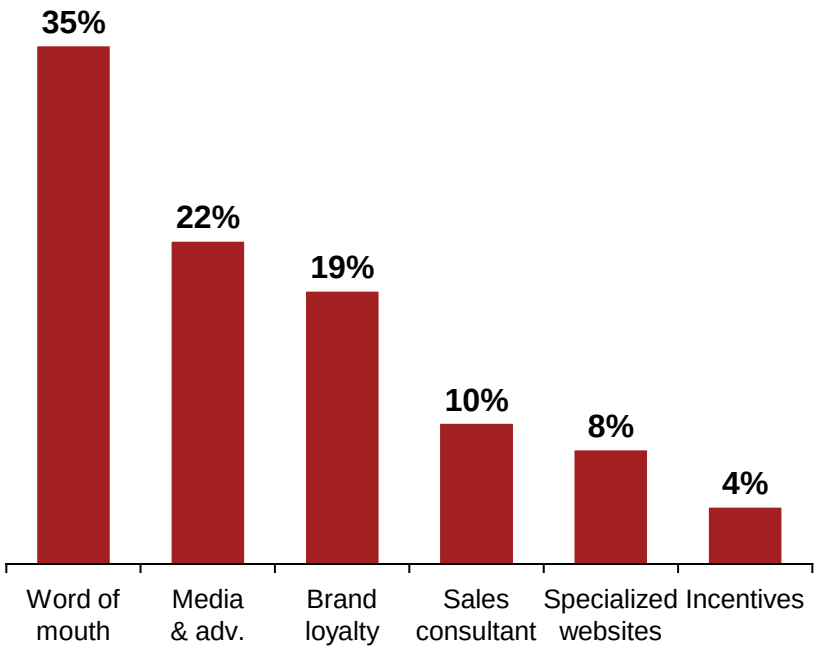
Customer experience during the EV purchasing process is getting closer to the ICE one, yet there is still a gap that needs to be addressed

EV customer journey

How did you begin to consider buying an EV?

999 respondents

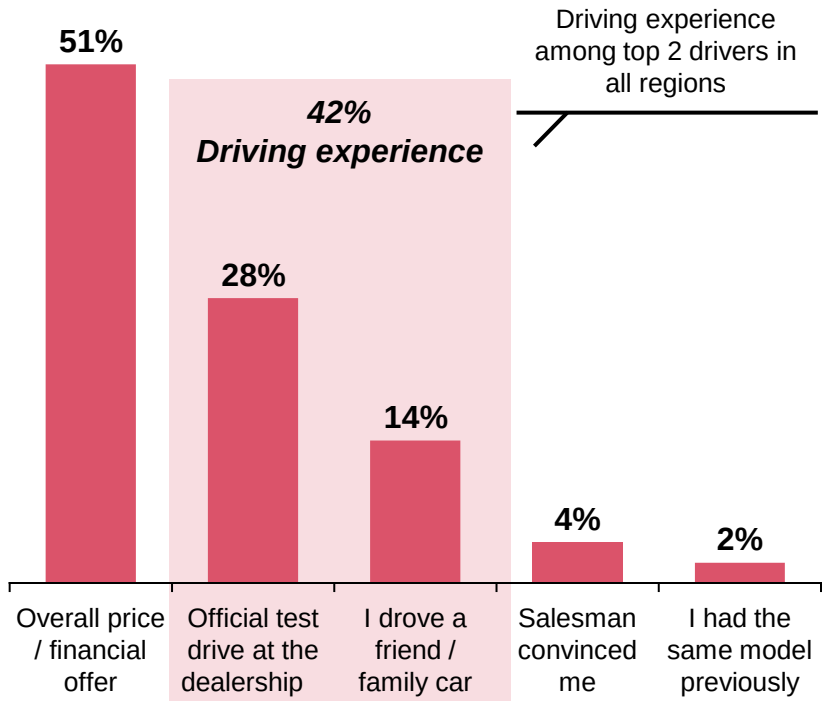
Consideration



What was the deciding factor that led you buying it?

999 respondents

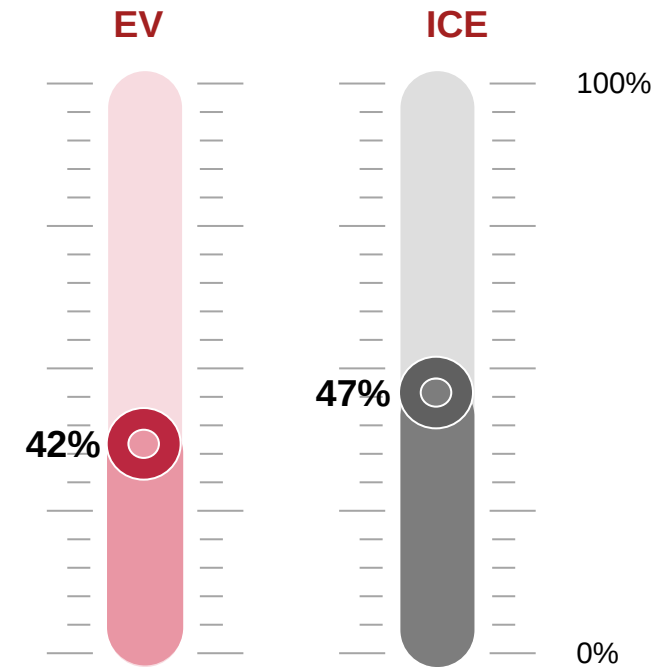
Purchase



How satisfied were you with the overall purchasing process?

999 respondents

Loyalty (NPS)



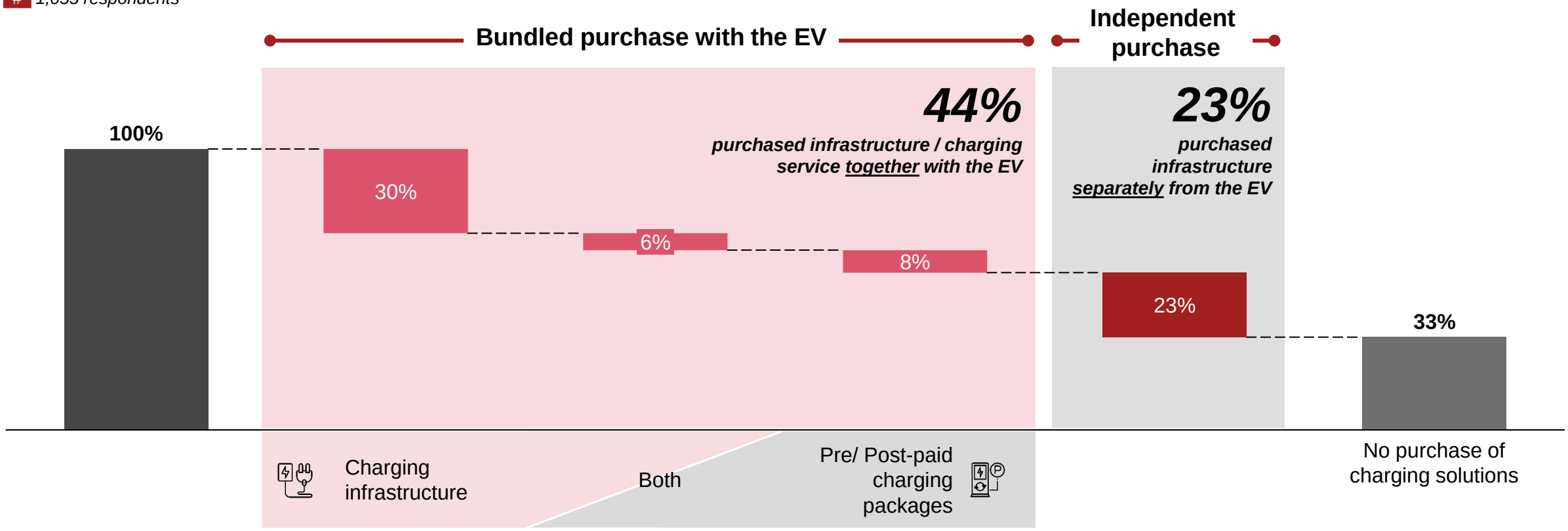
Source: Strategy& analysis on feedback from consumer survey

44% of EV owners bought a charging solution bundled with their car, while an additional 23% acquired it separately

Charging solutions

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

1,055 respondents



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

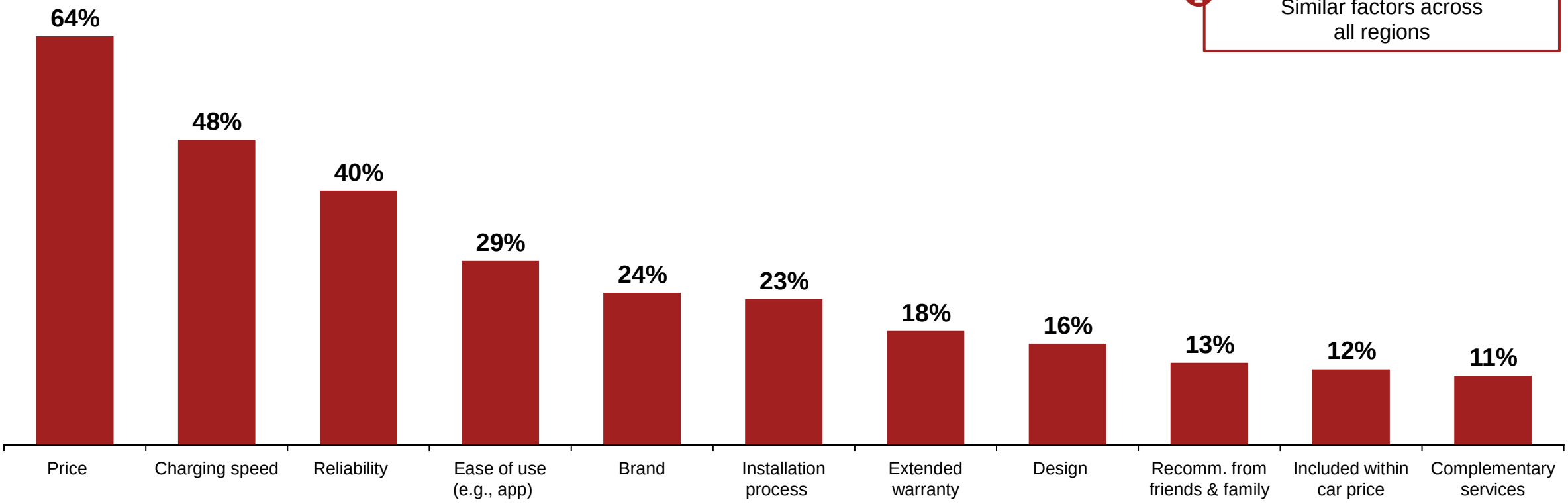
When purchasing a private charging infrastructure, the primary considerations are price, charging speed, and reliability

Private charging – Driving factors

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

704 respondents

Similar factors across all regions



Source: Strategy& analysis on feedback from consumer survey

Private charging installation is a key satisfaction driver, with customers being less satisfied when managed by utilities or 3rd parties

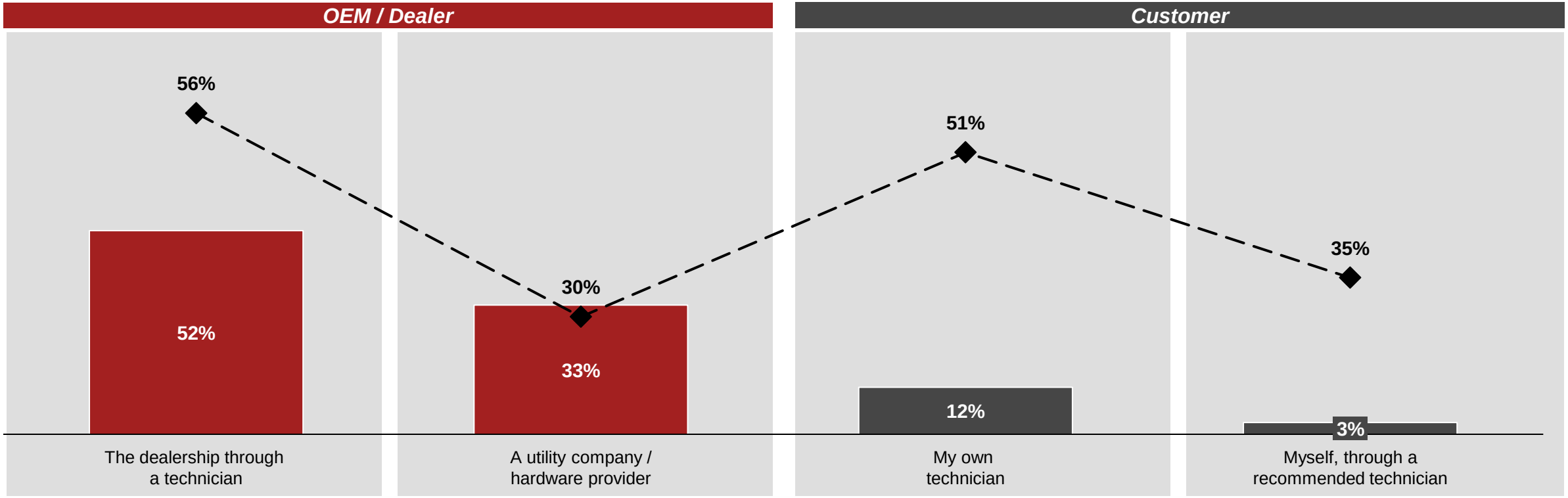
Private charging – Customer satisfaction with installation

Similar factors across all regions

Who was in charge of installing the charging infrastructure?

704 respondents

% NPS Score



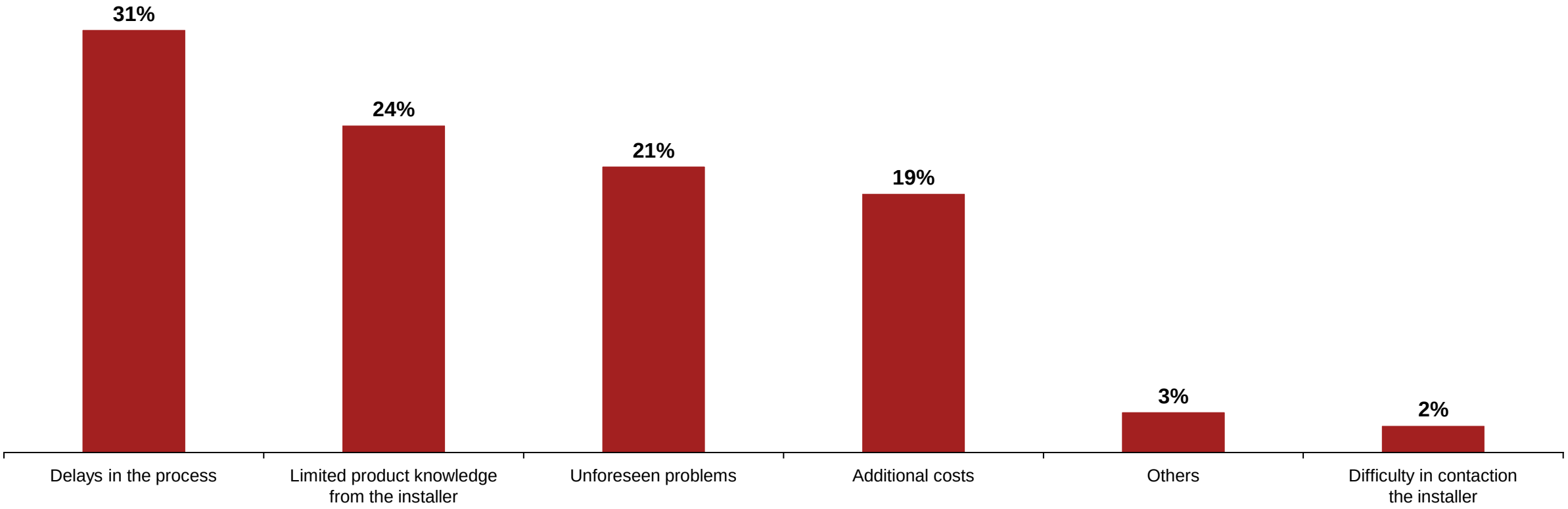
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Delays during the installation process and unprepared technicians are the key reasons for customers dissatisfaction

Private charging – Installation issues

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

58 respondents (detractors)



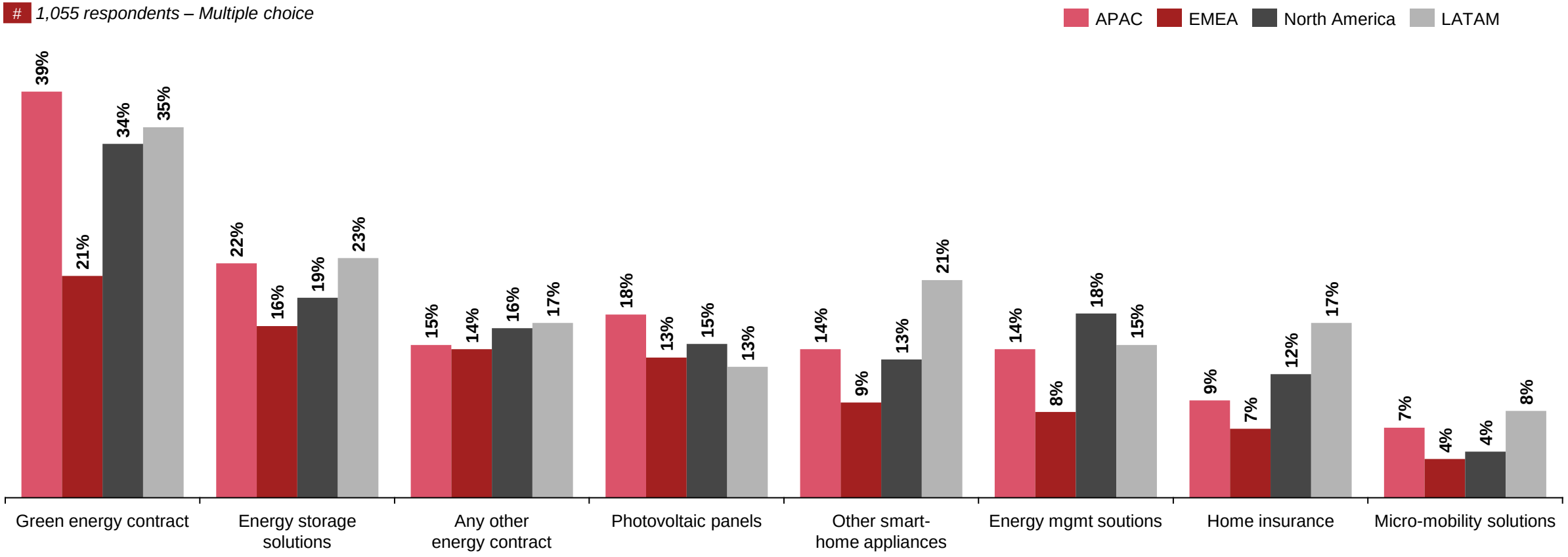
Source: Strategy& analysis on feedback from consumer survey

EV Owners show 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?

1,055 respondents – Multiple choice



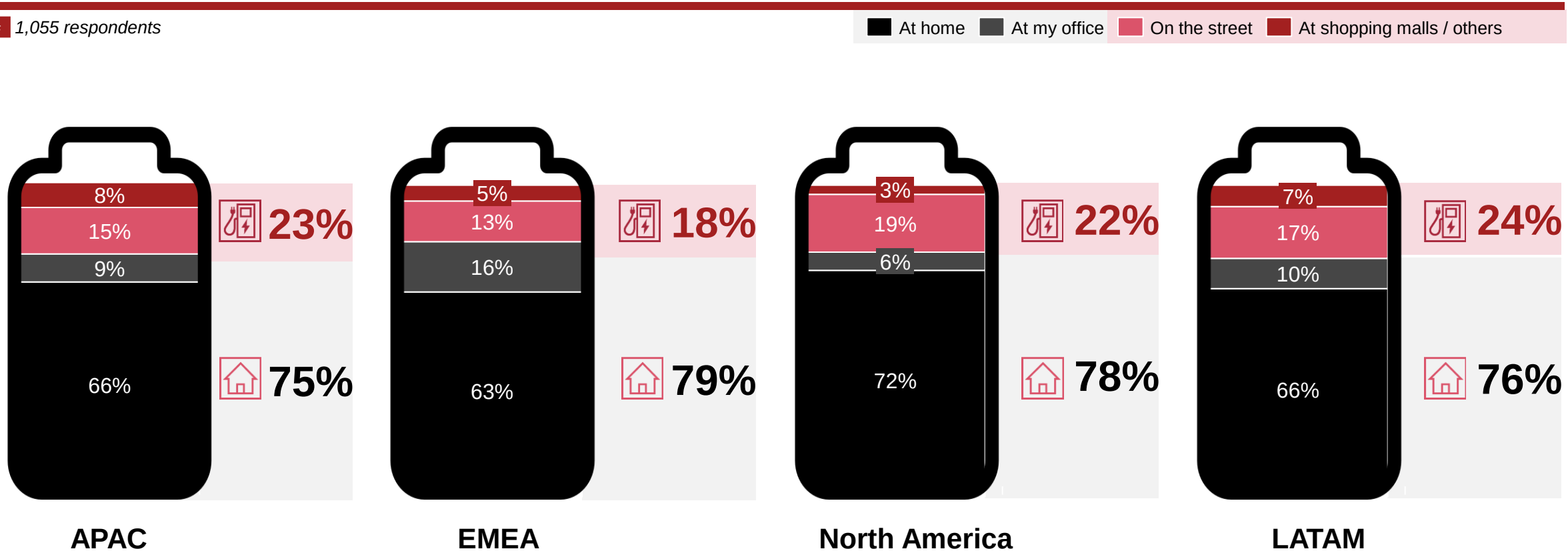
Source: Strategy& analysis on feedback from consumer survey

EV Owners charge their vehicle primarily at home or at their working location, with only 1 out of 4 relying mostly on on-the-street-charging

Charging preferences

Which is the primary location where you charge your EV?

1,055 respondents

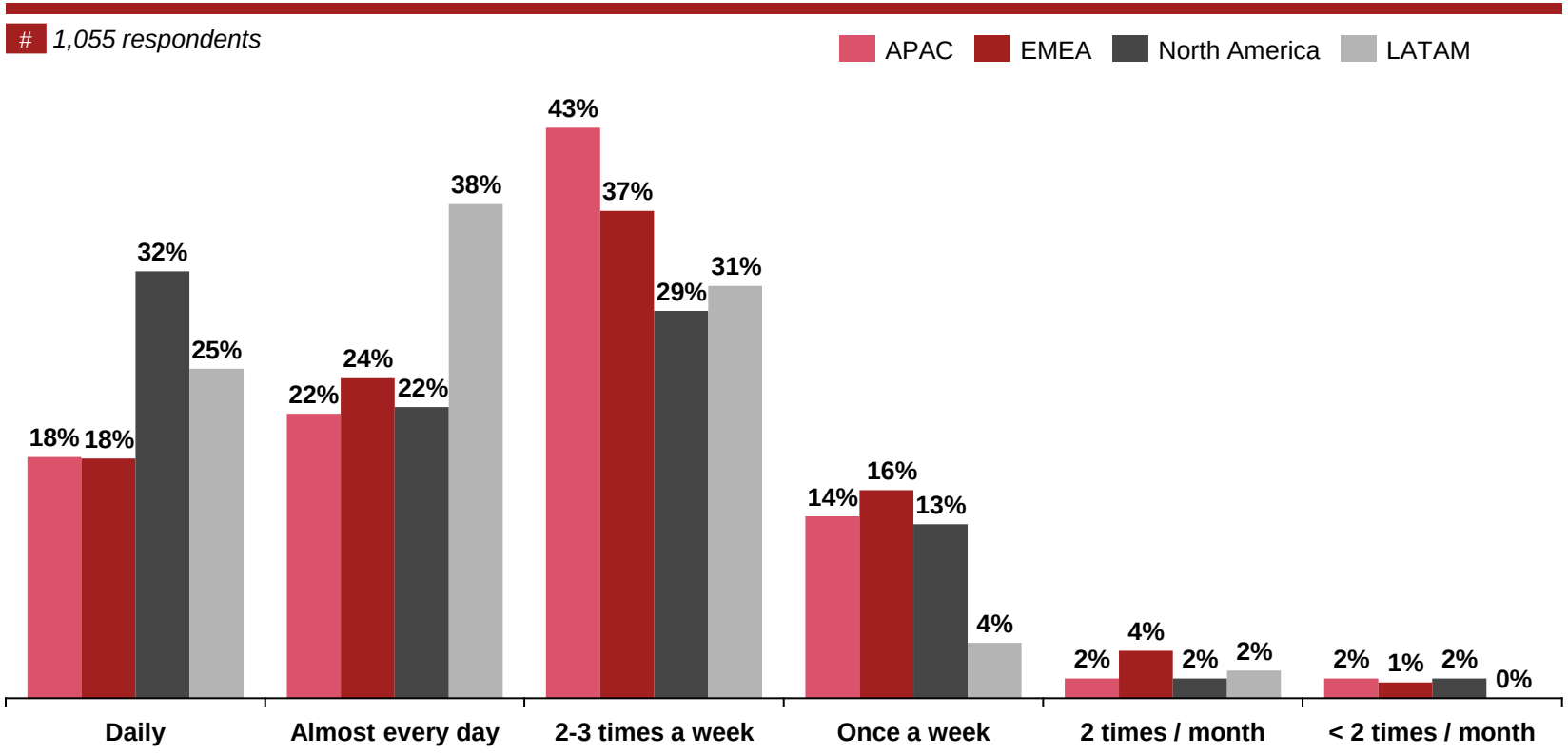


Note: 1) Other includes at shopping malls, supermarkets, and restaurants
Source: Strategy& analysis on feedback from consumer survey

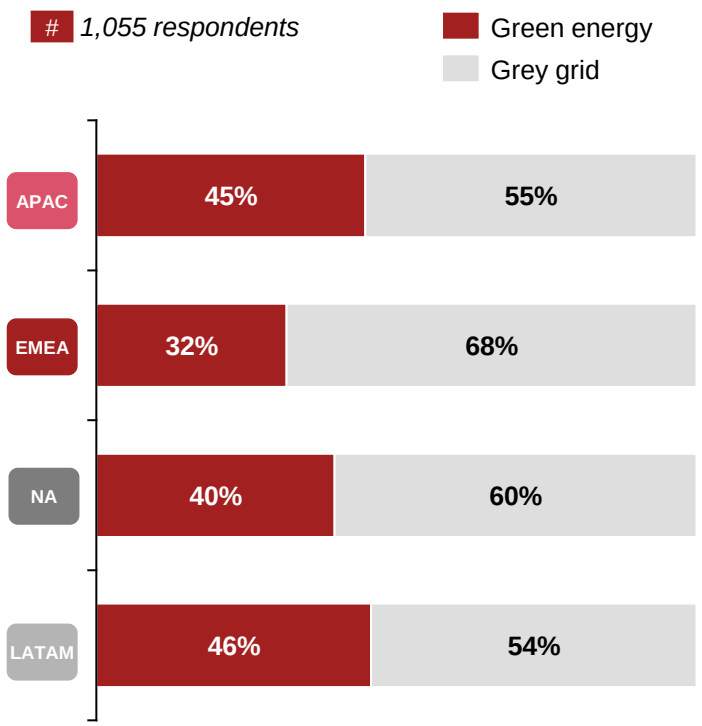
The majority of EV owners tend to charge their vehicles two to three times a week, primarily utilizing grey energy

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

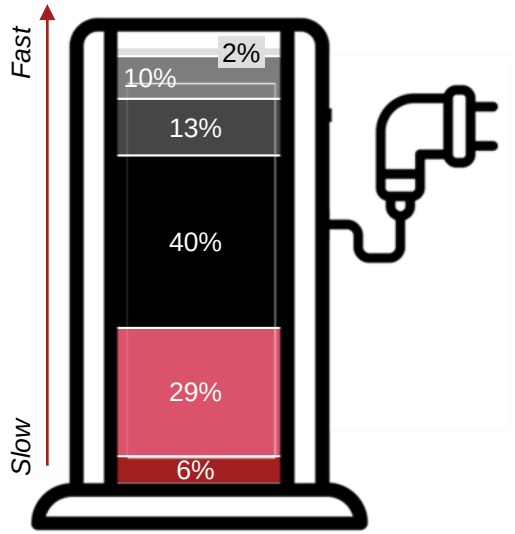
EV Owners prefer fast charging solutions and tend to be loyal their provider of choice mainly due to price and location convenience

Public charging

Which charging power do you typically use?

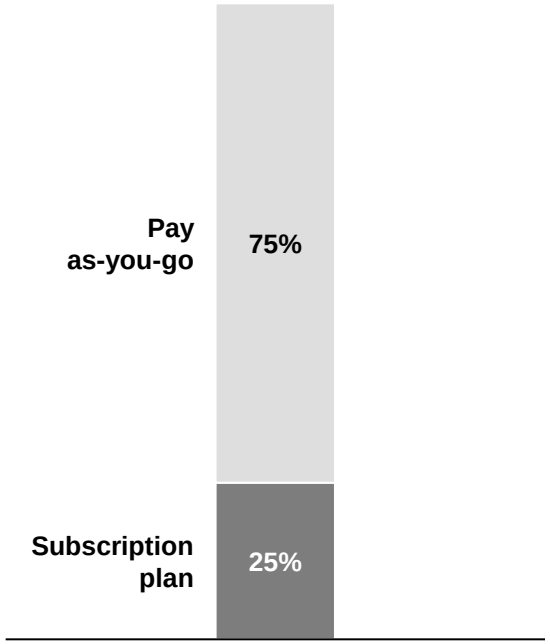
521 respondents

Slow (< 7 kW)
Quick (7-22 kW)
Fast (22-50 kW)
Ultrafast (more than 50 kW)
What is available
I do not know



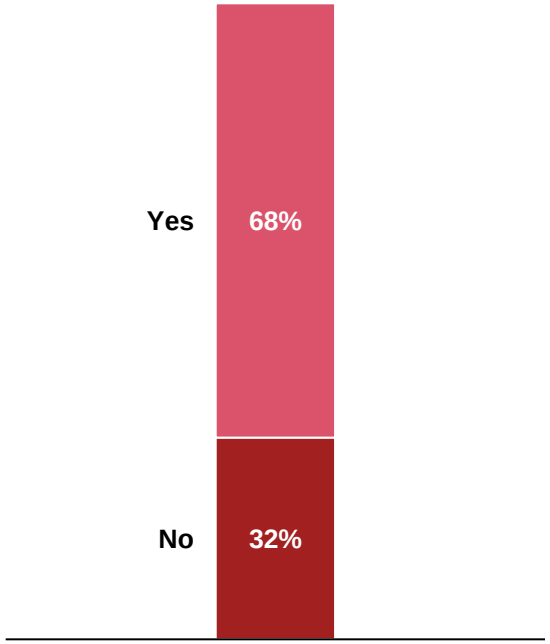
Which tariff do you use?

290 respondents



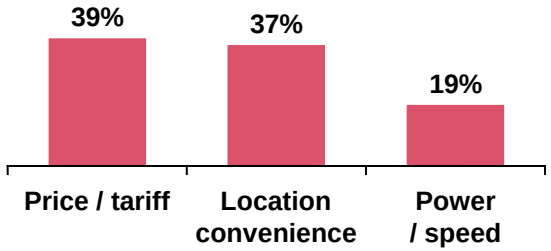
Do you always use the same charging provider on-the-go?

521 respondents



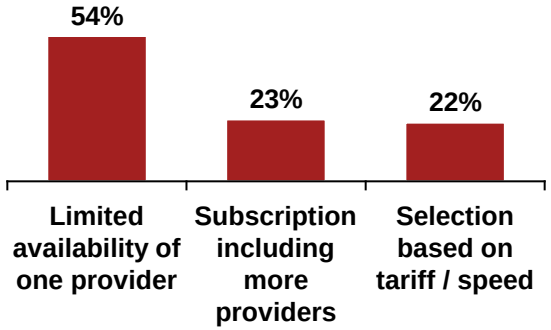
Which are the top 3 reasons to choose the same provider?

356 respondents



Which are the top 3 reasons to use different providers?

165 respondents

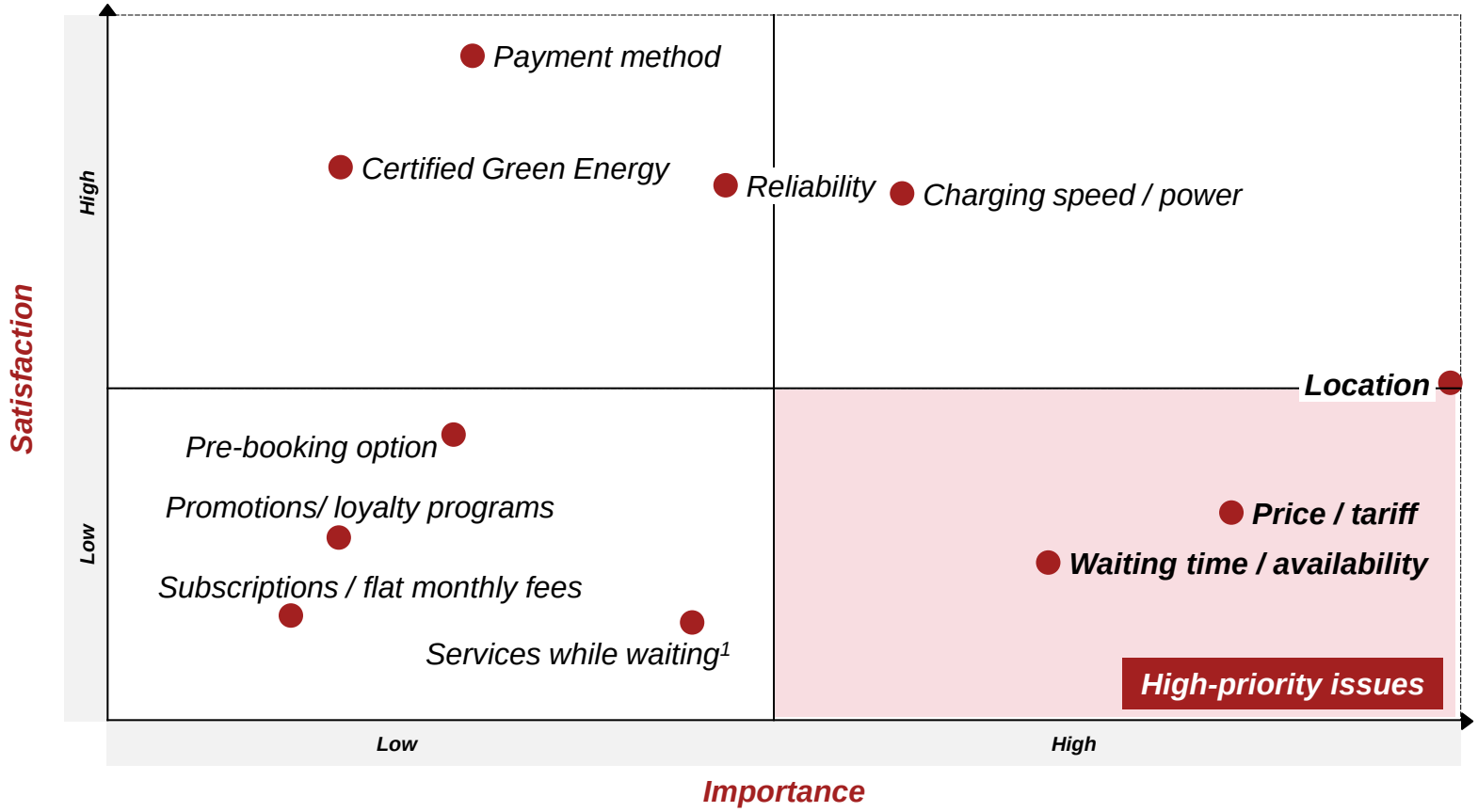


Source: Strategy& analysis on feedback from consumer survey

Availability of charging infrastructure, location and tariffs are the key dissatisfaction area for EV Owners

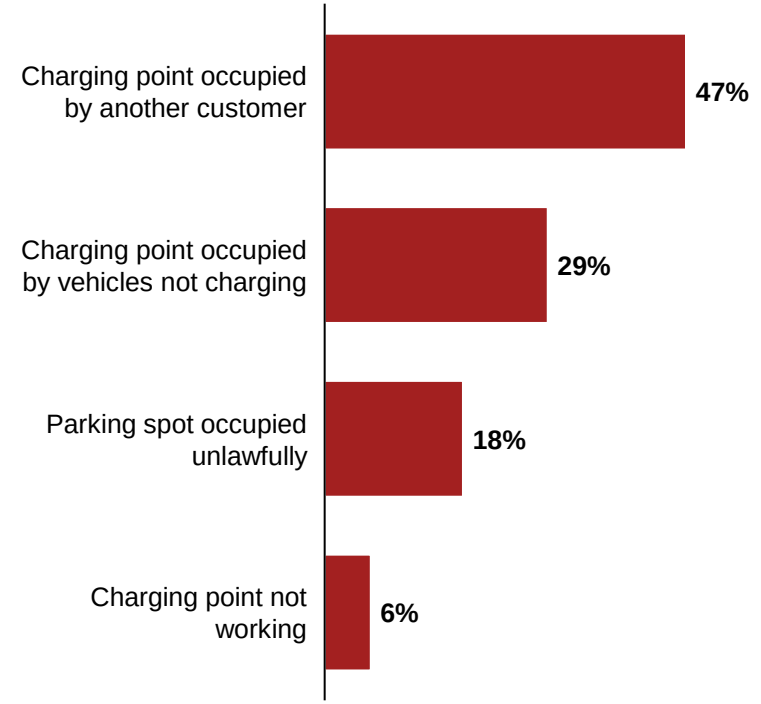
Public charging – Satisfaction

521 respondents – Multiple choice



Which are the main reasons to be dissatisfied with the availability?

84 respondents

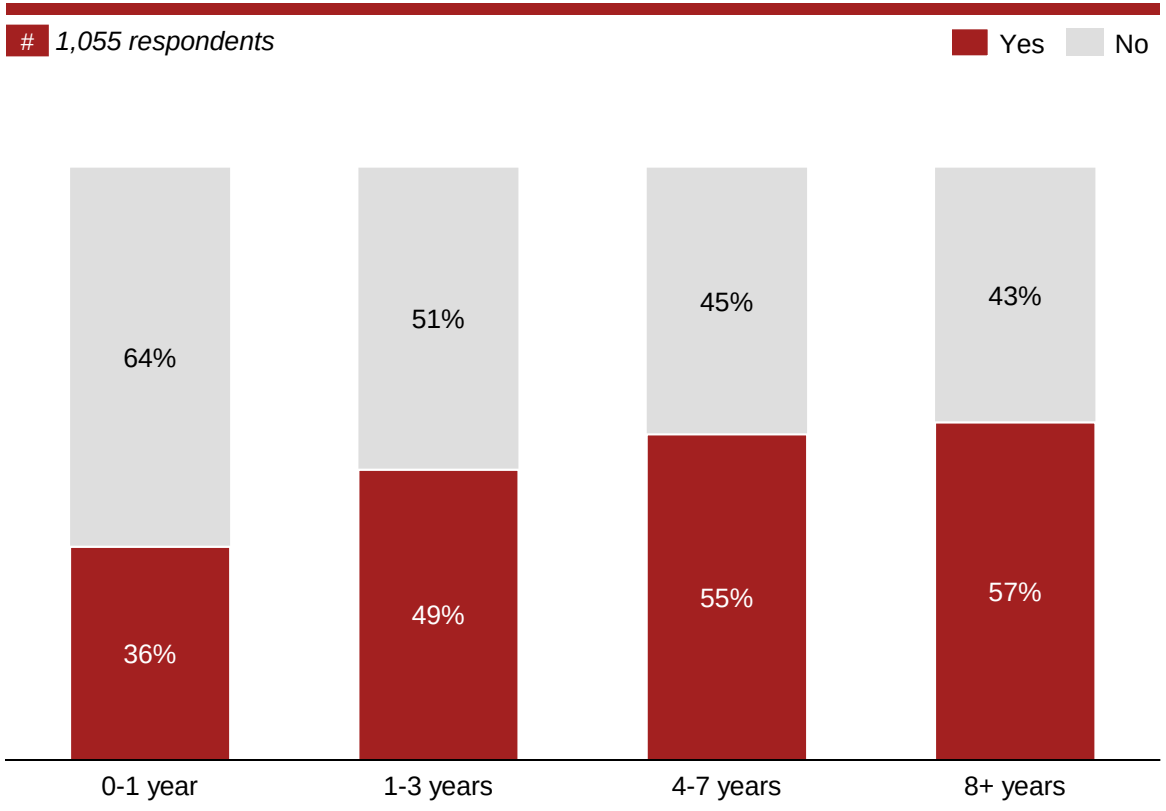


1) Services such as restaurants, shops, vending machines and other services located nearby the charging station
Source: Strategy& analysis on feedback from consumer survey

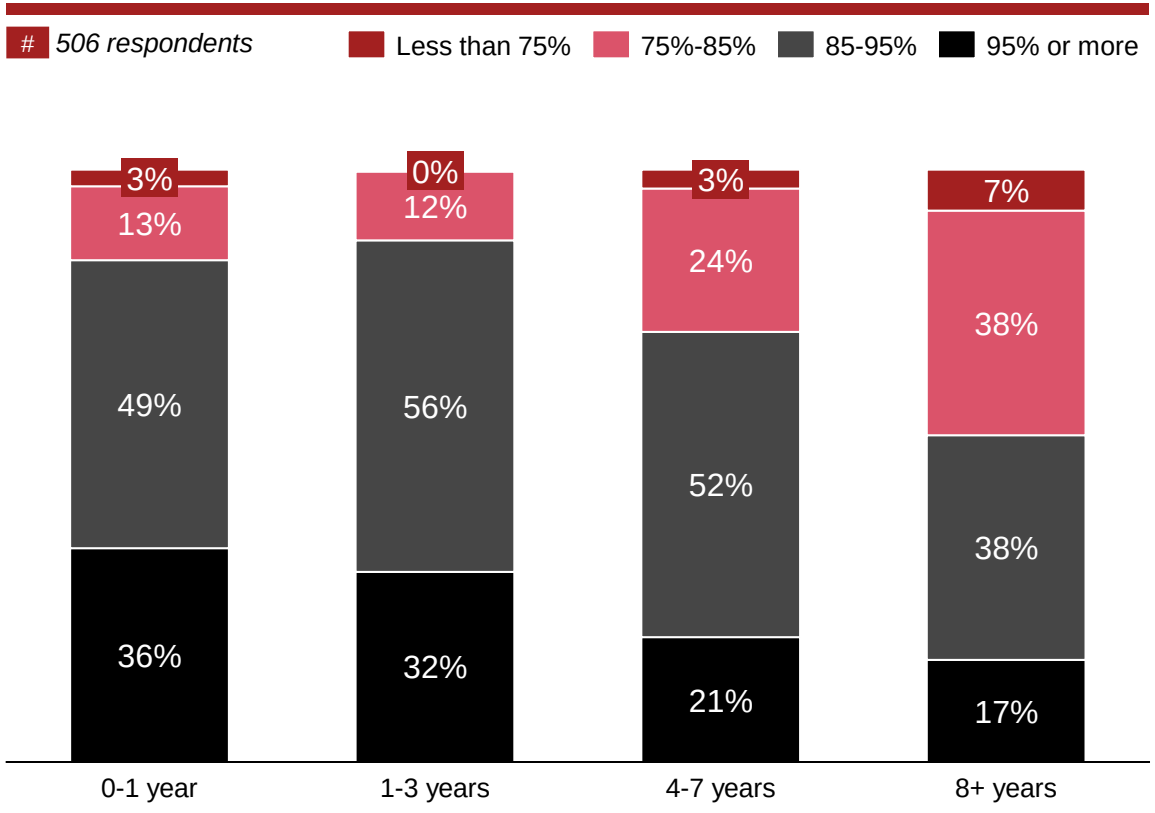
Half of the EV owners notice a decrease in their EV battery SoH after 3 years, yet only 7% see a significant reduction below 75% after 8 years

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?



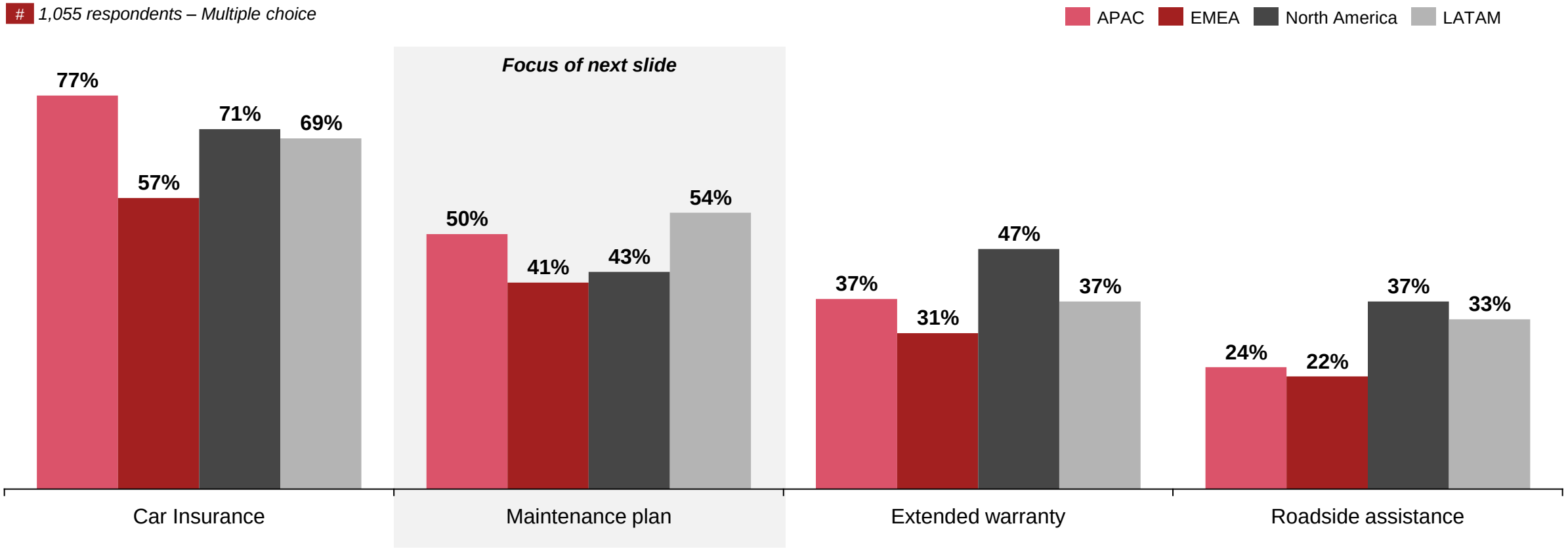
Source: Strategy& analysis on feedback from consumer survey

Insurance and maintenance plans are selected by the majority of EV Owners when purchasing a new car

Additional products & services – Focus on car-related services

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

 # 1,055 respondents – Multiple choice

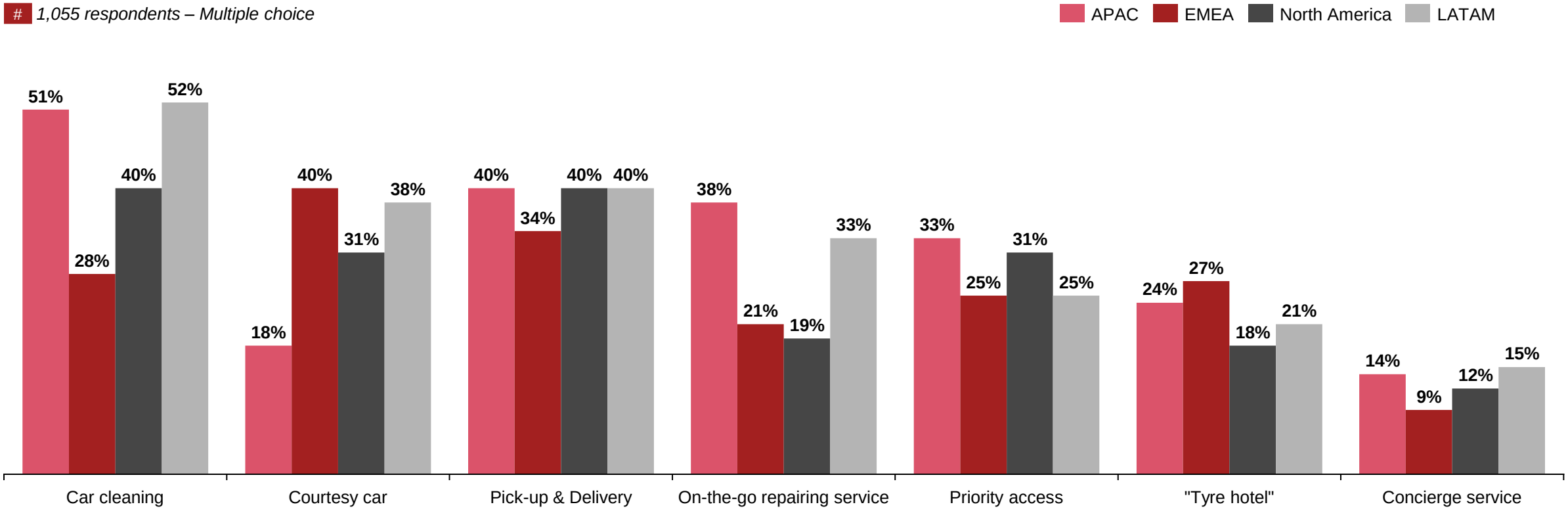


In addition to traditional maintenance, EV owners seek *premium* services, such as cleaning, courtesy car and pick-up & delivery

Additional products & services – Focus on maintenance plan

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

1,055 respondents – Multiple choice



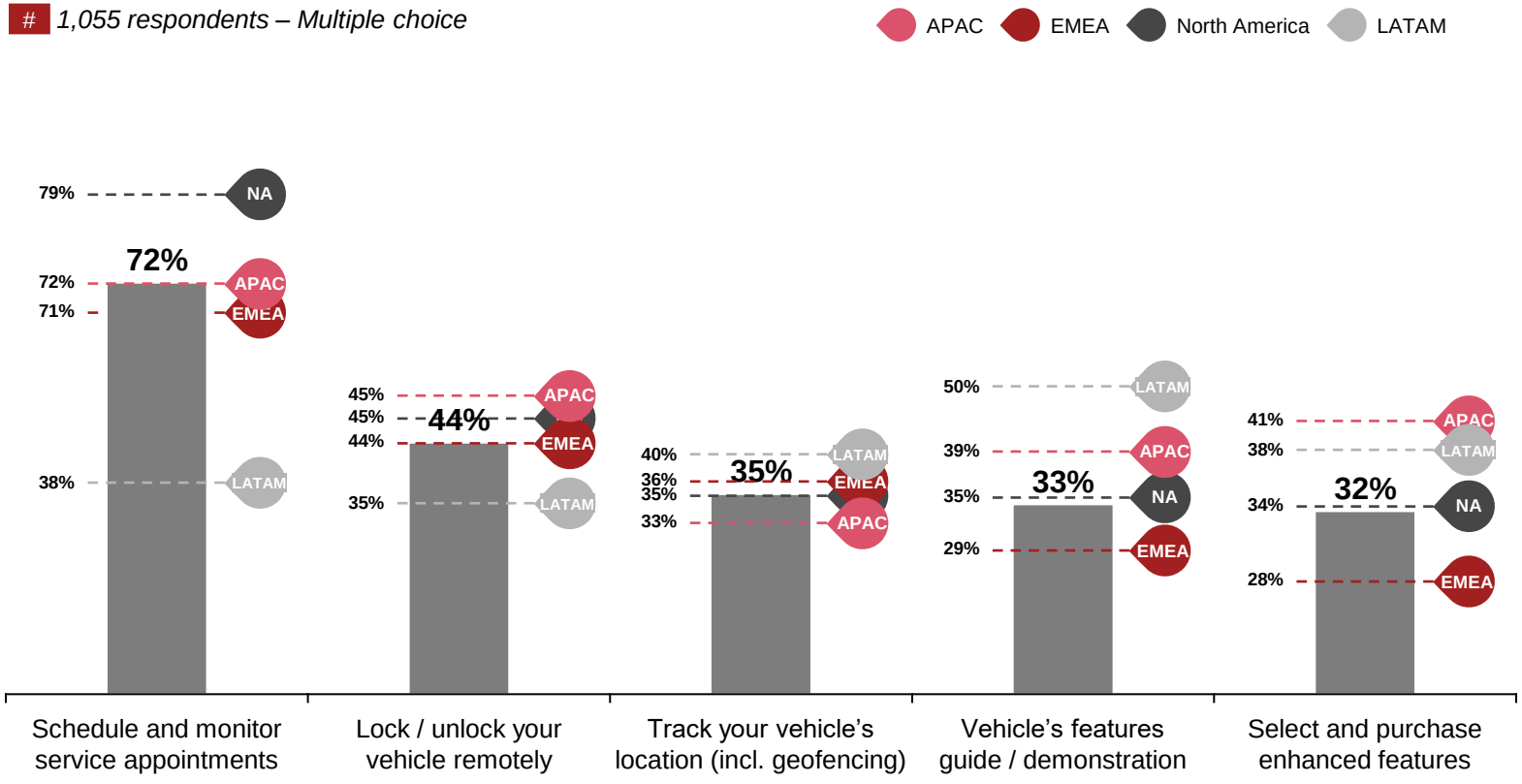
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Nearly 75% of customers utilize or would use the OEM app to schedule appointments, while other services are less popular

Digital app

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

1,055 respondents – Multiple choice



Other services to be included in car app

- 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

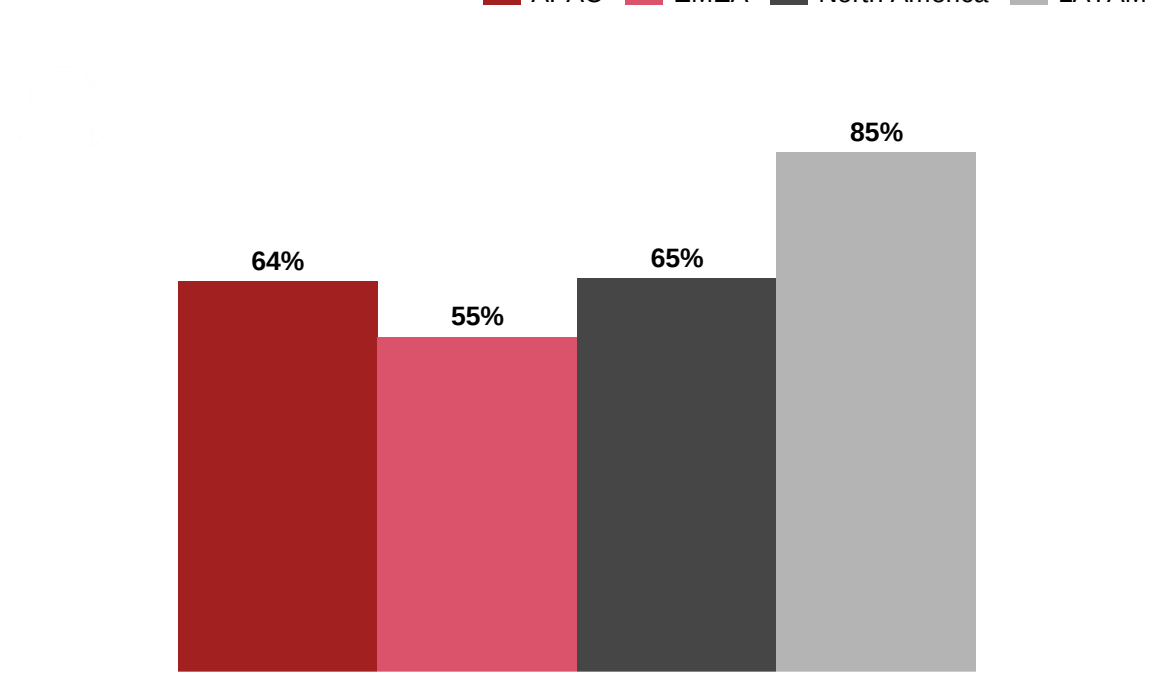
Over 60% of EV owners consider the residual value when purchasing a new car, while almost 50% would consider a used EV as next car

Residual value

Focus on next slides

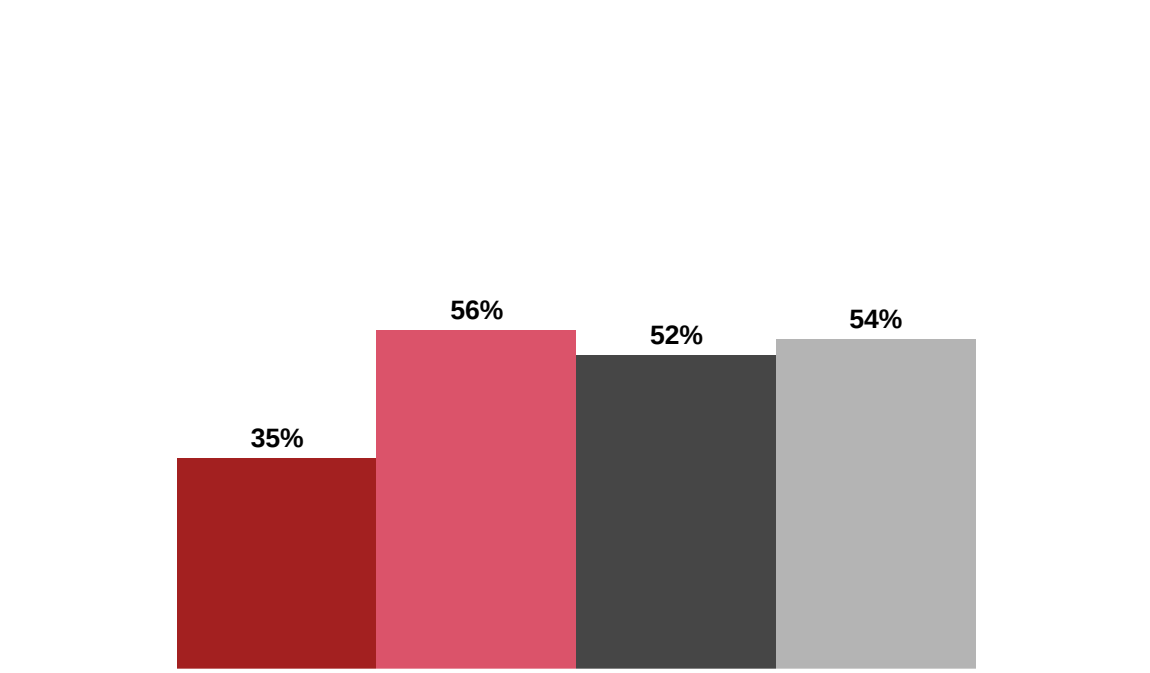
Was the residual value of the car a key factor when choosing it? (% of yes)

1,055 respondents



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

1,055 respondents



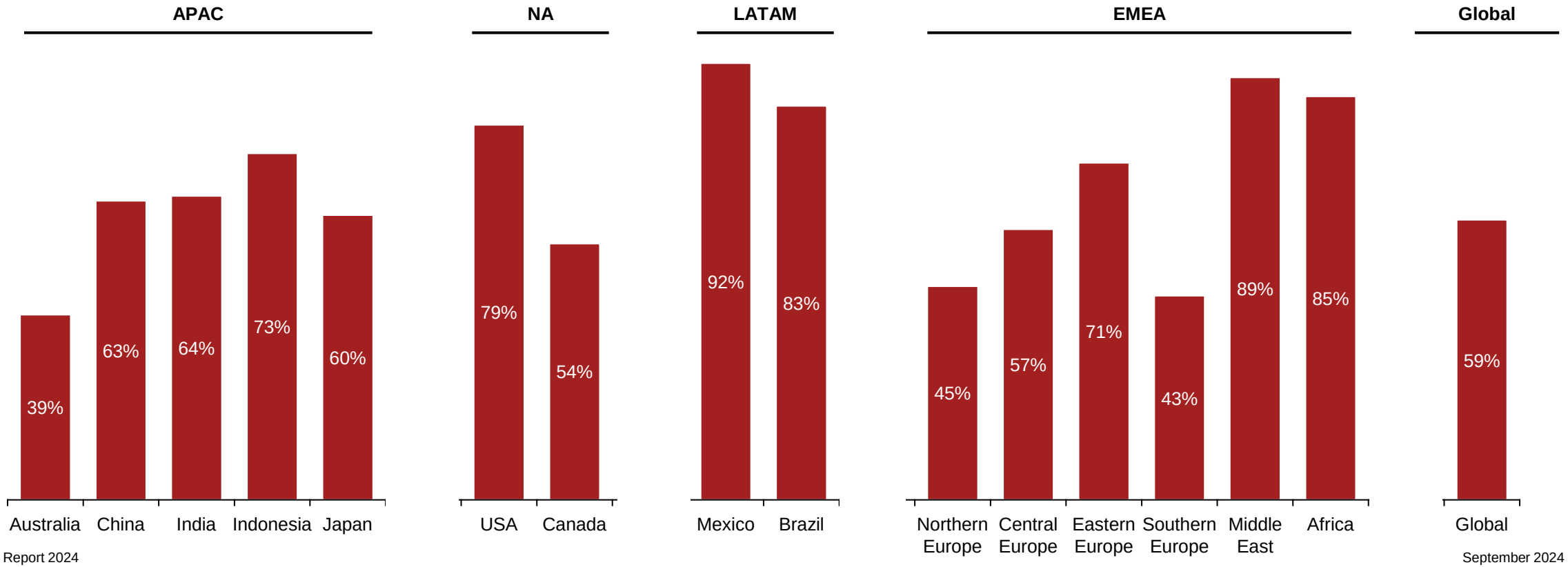
Source: Strategy& analysis on feedback from consumer survey

For 80-90% of the consumers in LATAM, Middle East and Africa the residual value has been a key factor when choosing their vehicle

Residual value

Was the residual value of the car a key factor when choosing it? (% of yes)

1,055 respondents



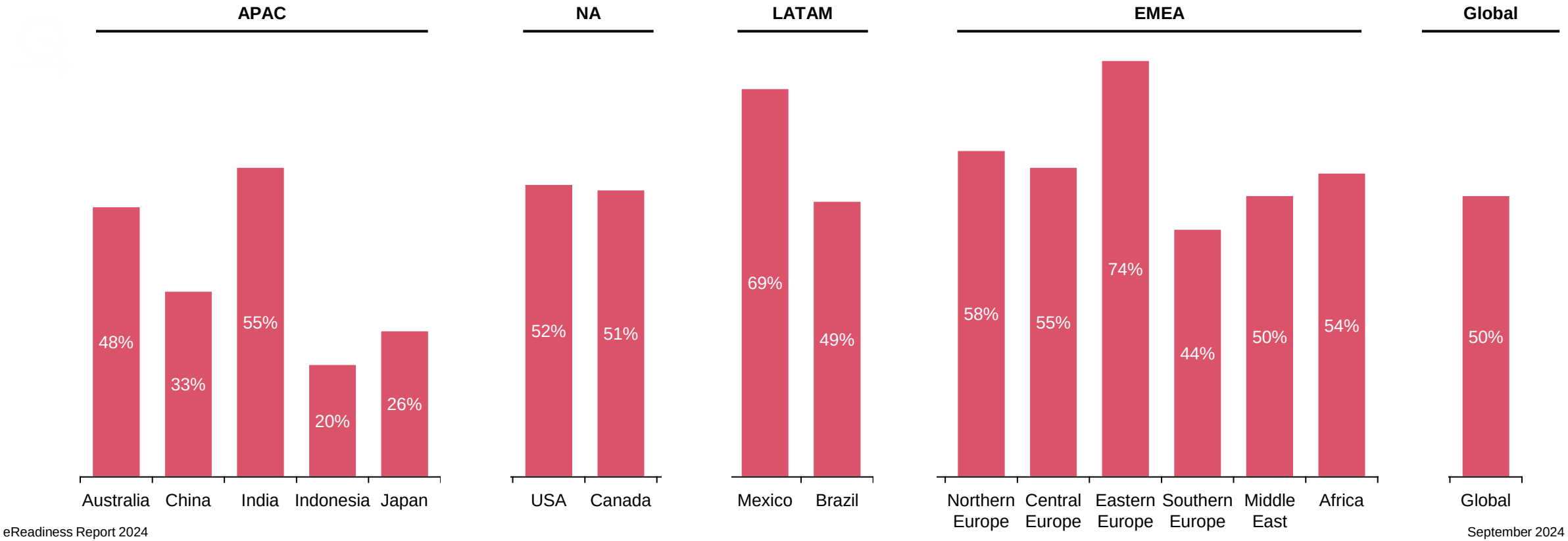
Source: Strategy& analysis on feedback from consumer survey

Eastern Europe and Mexico are the countries with the highest propension towards used vehicles

Residual value

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

1,055 respondents



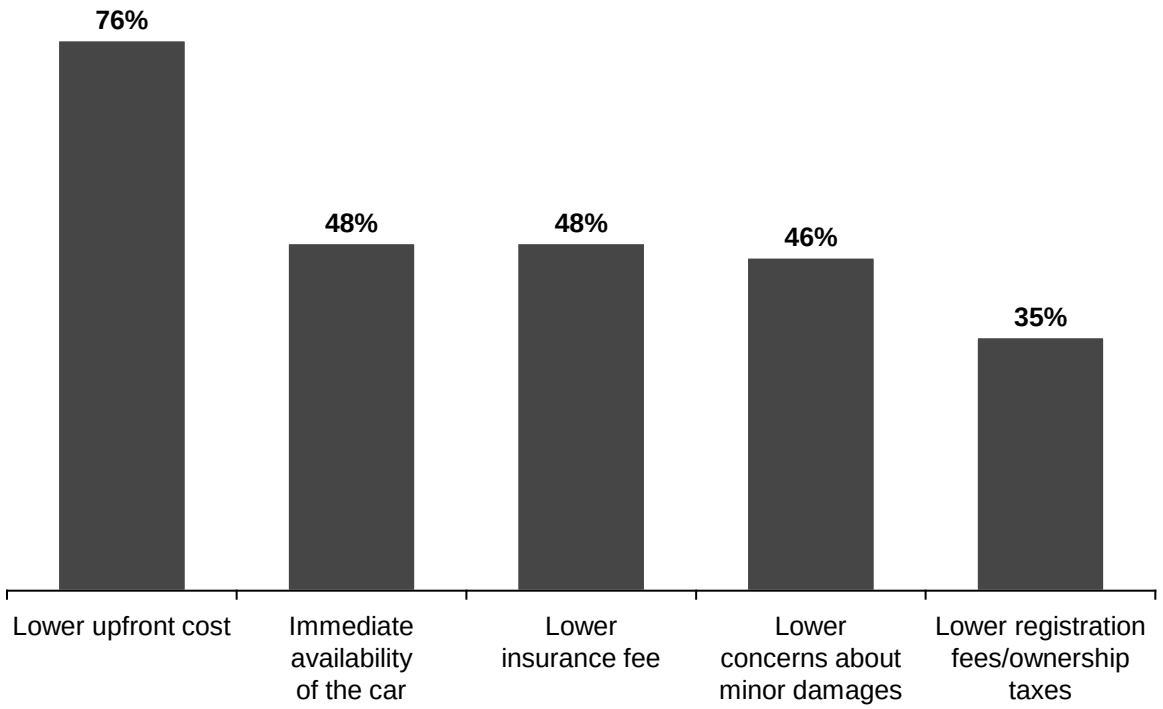
Source: Strategy& analysis on feedback from consumer survey

Lower upfront costs drives the attractiveness of used EV, yet fear reduced battery SoH and hidden damages are key barriers to be tackled

Used EV – Drivers and barriers

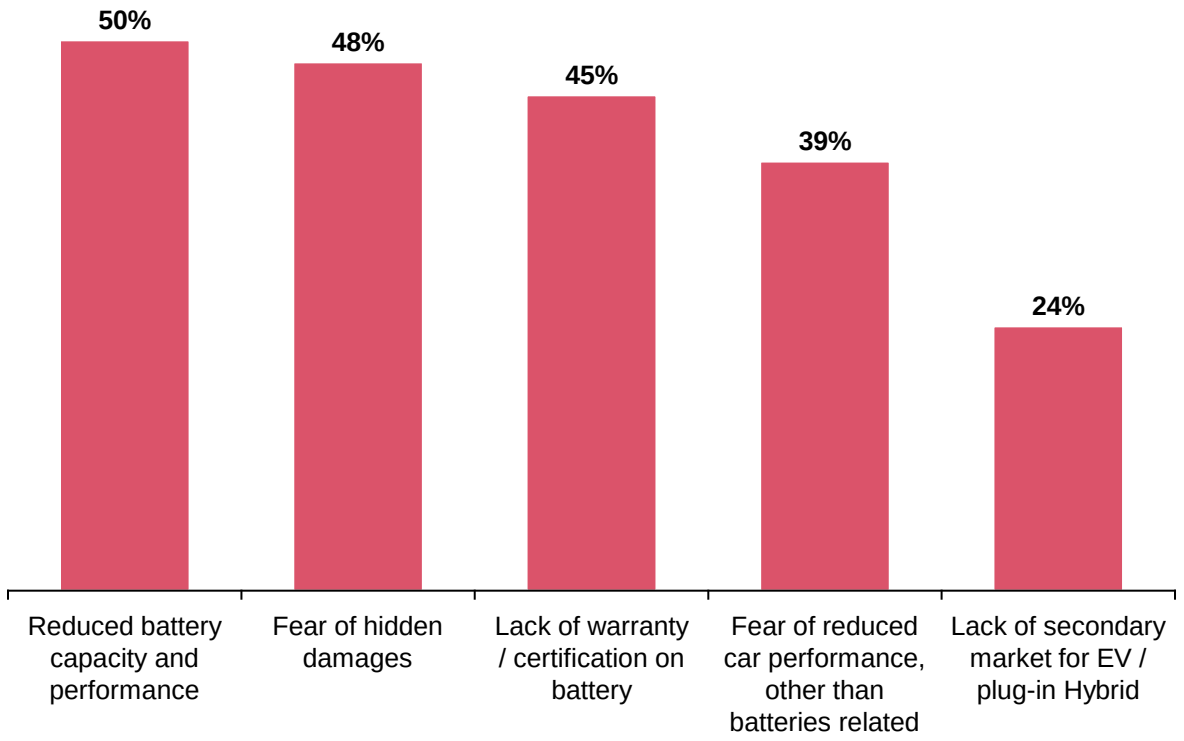
What are the top 5 reasons for buying a used EV?

 # 527 respondents – Multiple choice



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

 # 1,055 respondents – Multiple choice



Source: Strategy& analysis on feedback from consumer survey

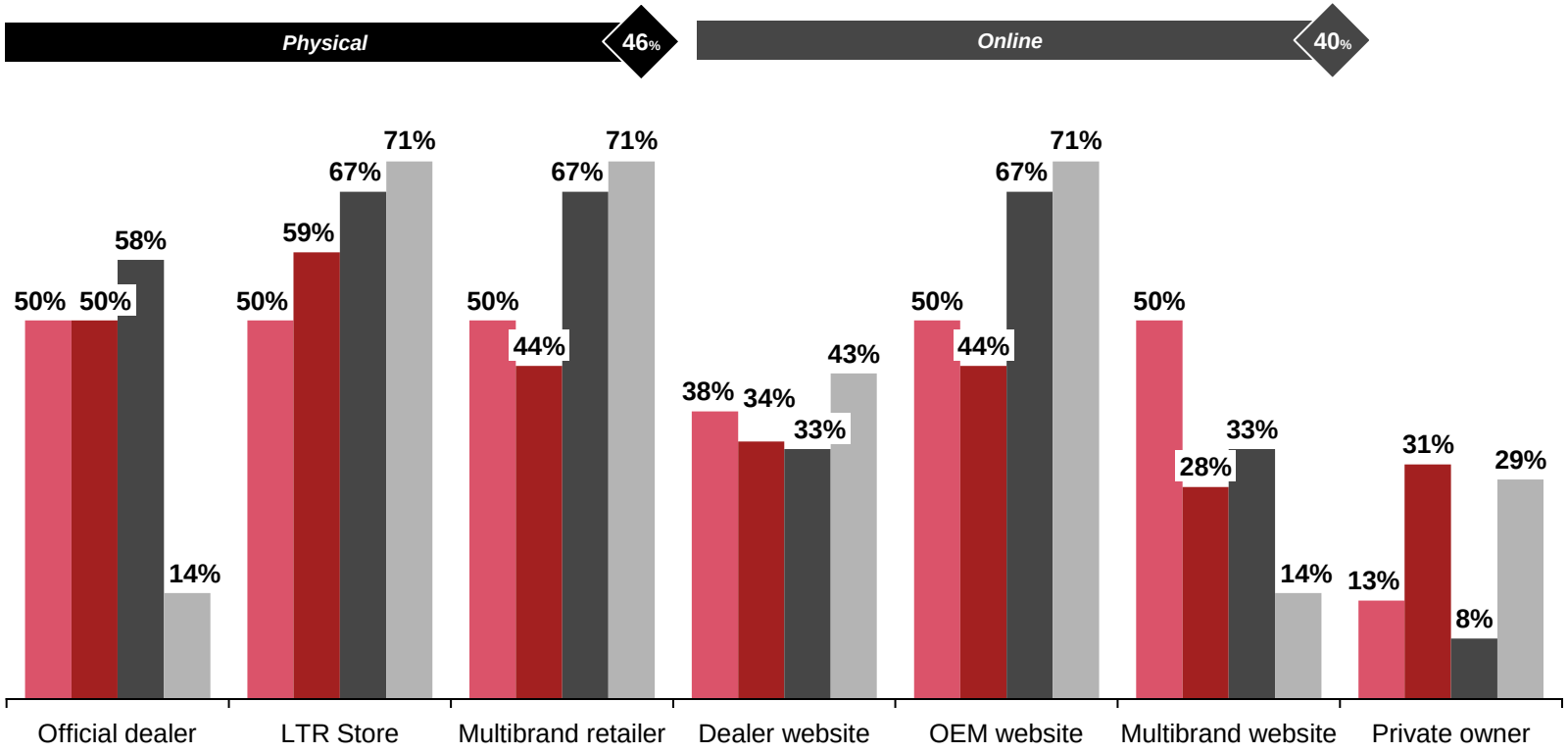
Physical stores are the preferred purchasing channel for used EVs, whether from official dealers, LTR providers or multi-brand retailers

Used EV – Purchase preferences

Where would you purchase your next used EV from?

527 respondents – Multiple choice

APAC EMEA North America LATAM



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

527 respondents – Multiple choice

1. **Overall price / value**
2. **Charging solution**
3. **Finance solutions**
4. **Remaining duration of warranty period**
5. **Insurance solutions**

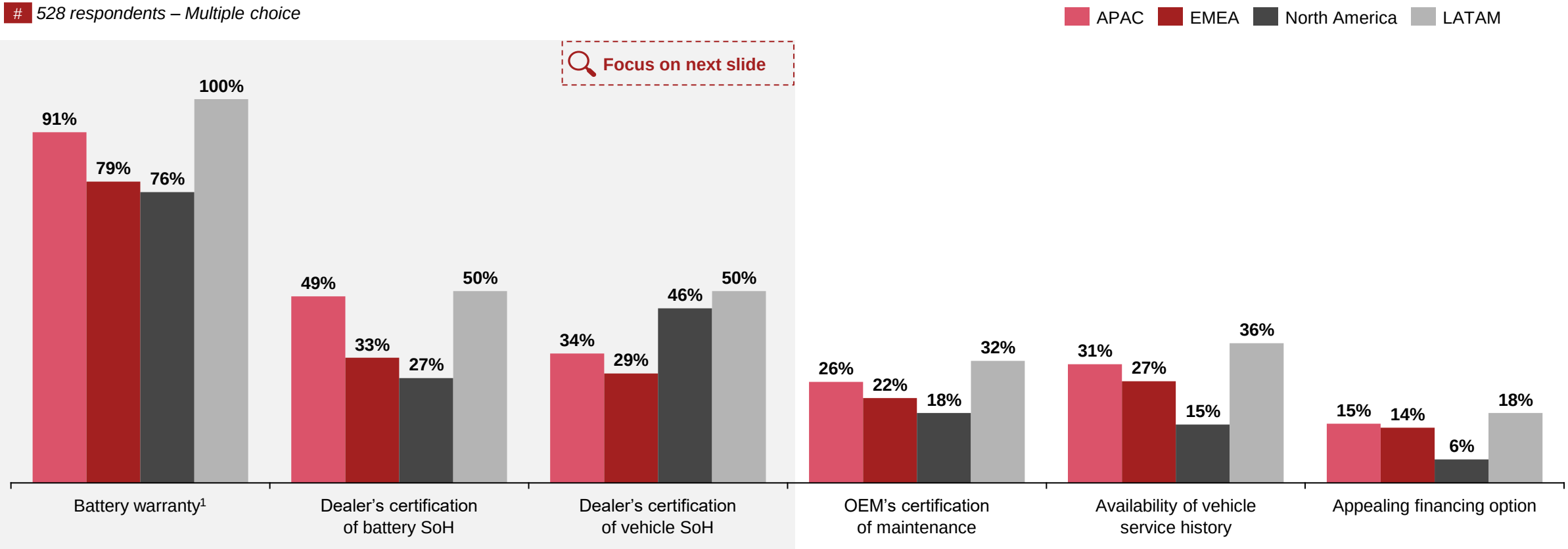
Source: Strategy& analysis on feedback from consumer survey

Battery warranty and SoH certification are key factors in incentivizing customers to purchase a used EV

Used EV – Purchasing drivers

Which factors would incentivize you to consider a used EV?

528 respondents – Multiple choice



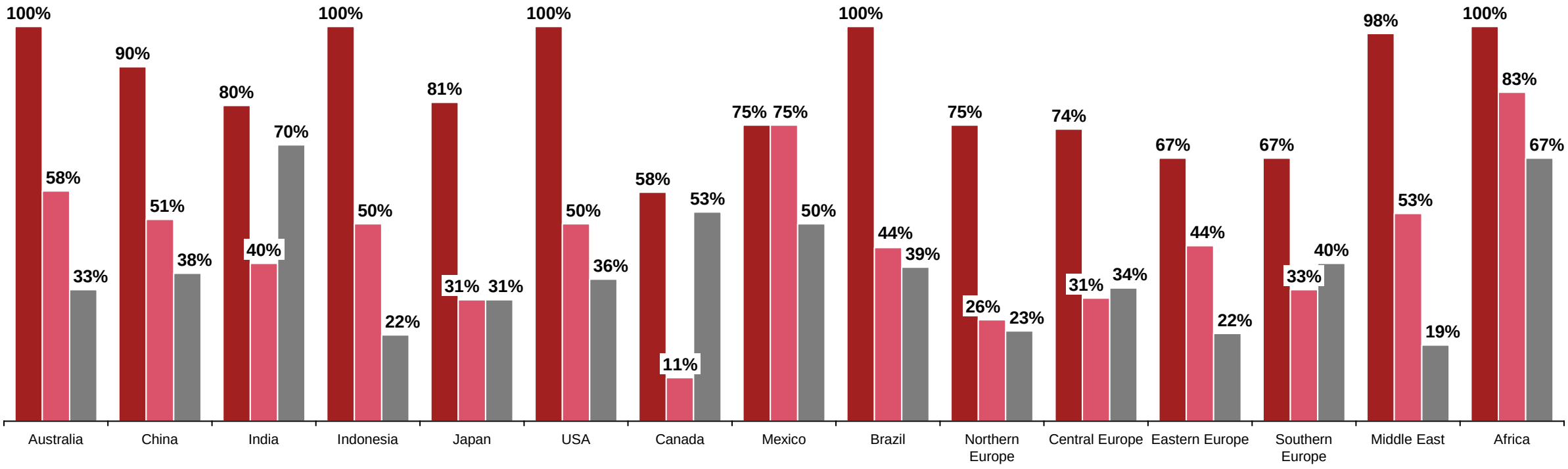
Notes: 1) Either manufacturer or third-party
Source: Strategy& analysis on feedback from consumer survey

Across all countries, the battery warranty emerges as the primary factor driving the purchase of a used EV

Used EV – Deep dive on top 3 purchasing drivers

Which factors would incentivize you to consider a used EV?

528 respondents – Multiple choice



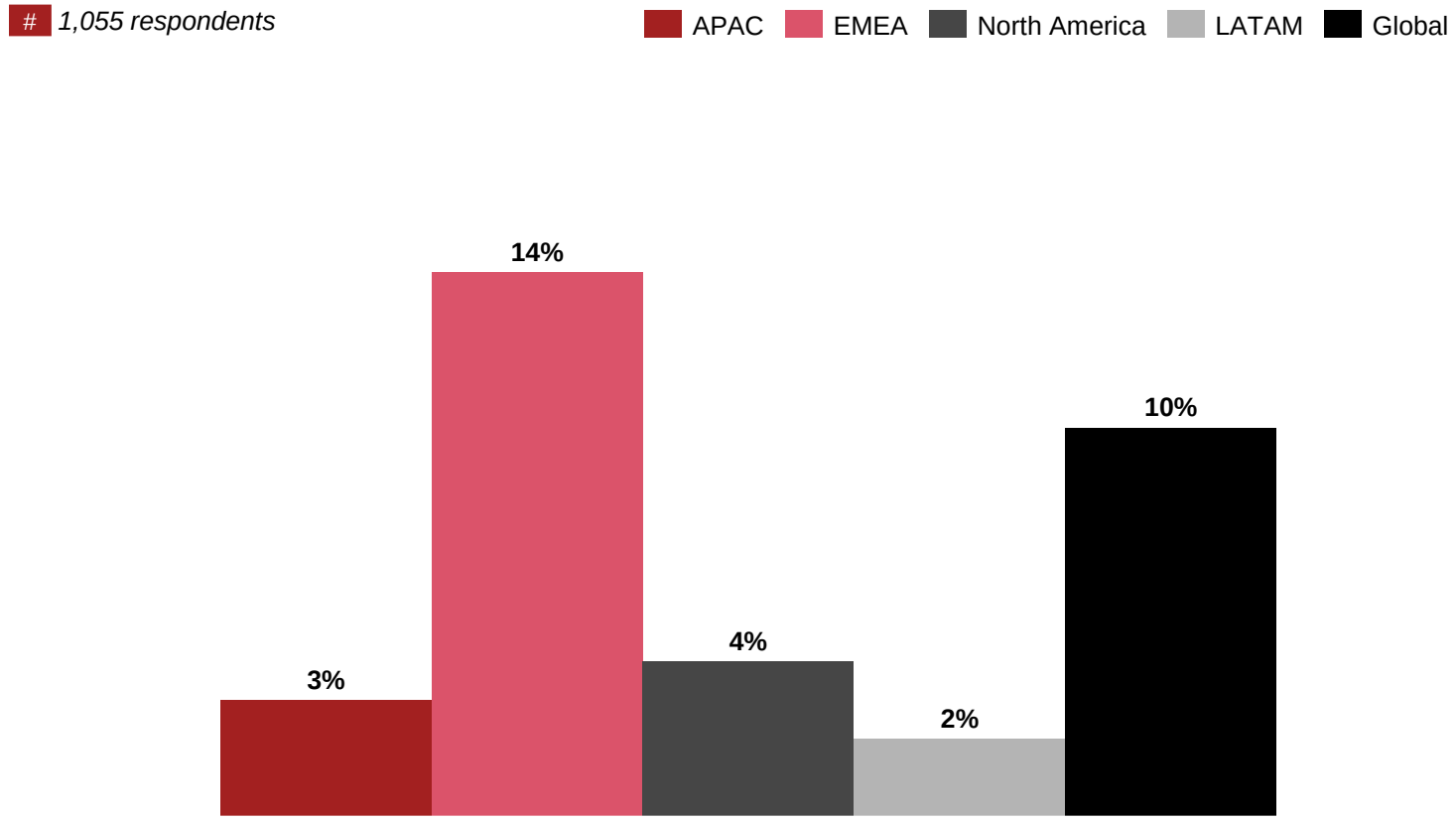
Notes: 1) Either manufacturer or third-party
Source: Strategy& analysis on feedback from consumer survey

Used EV market is still early stage with only 10% EV owners having a used vehicle

Used EV – Focus on owners profiles

Is your current car new or used? (% of used EV)

1,055 respondents



Used EV Owner profile
(Δ with new EV owner)

Income	**€44k** (-50k)
Age	**40Yrs.** (-1Yrs.)
Residential Area	**78%** (-16%)
Family size	**3.2** (-0.2)
Daily commute	**19Km** (-5 Km)

Source: Strategy& analysis on feedback from consumer survey

02. Consumer viewpoints

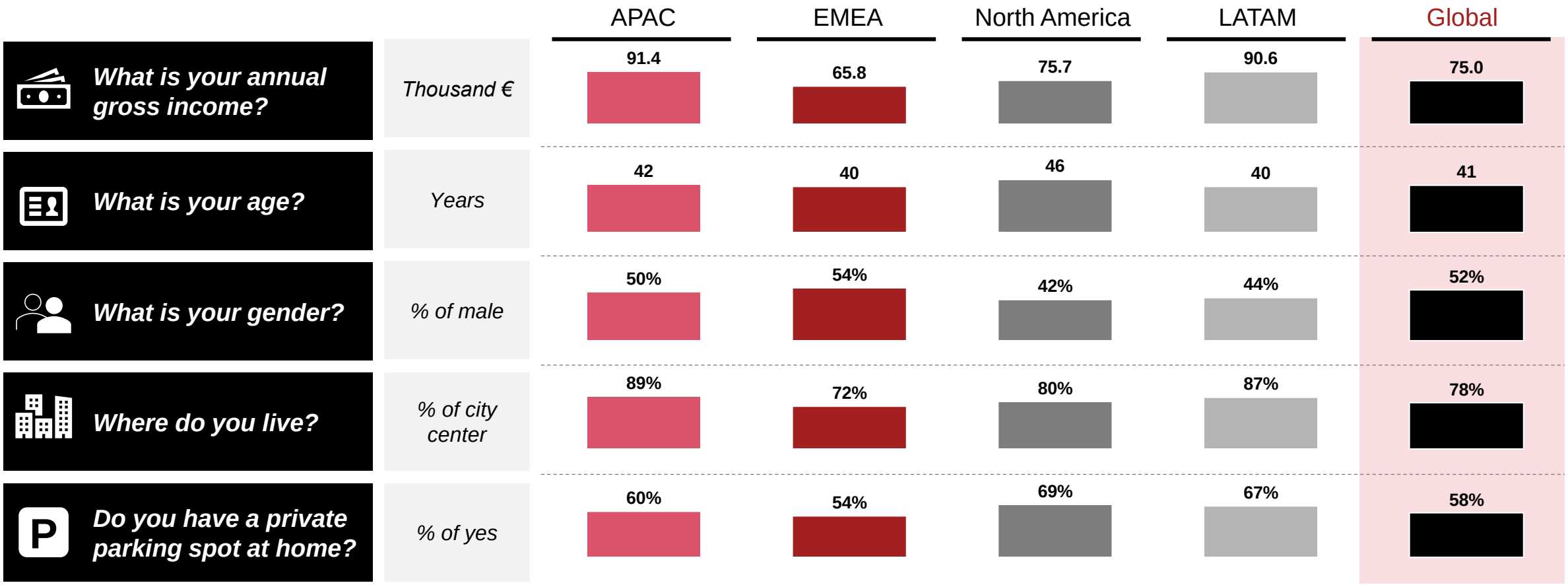
EV Prospects

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

Prospects show region-based differences in demographics and mobility, pointing to diverse needs in prospective EVs

Prospects – Regional differences (1/2)

\# *10,485 respondents*

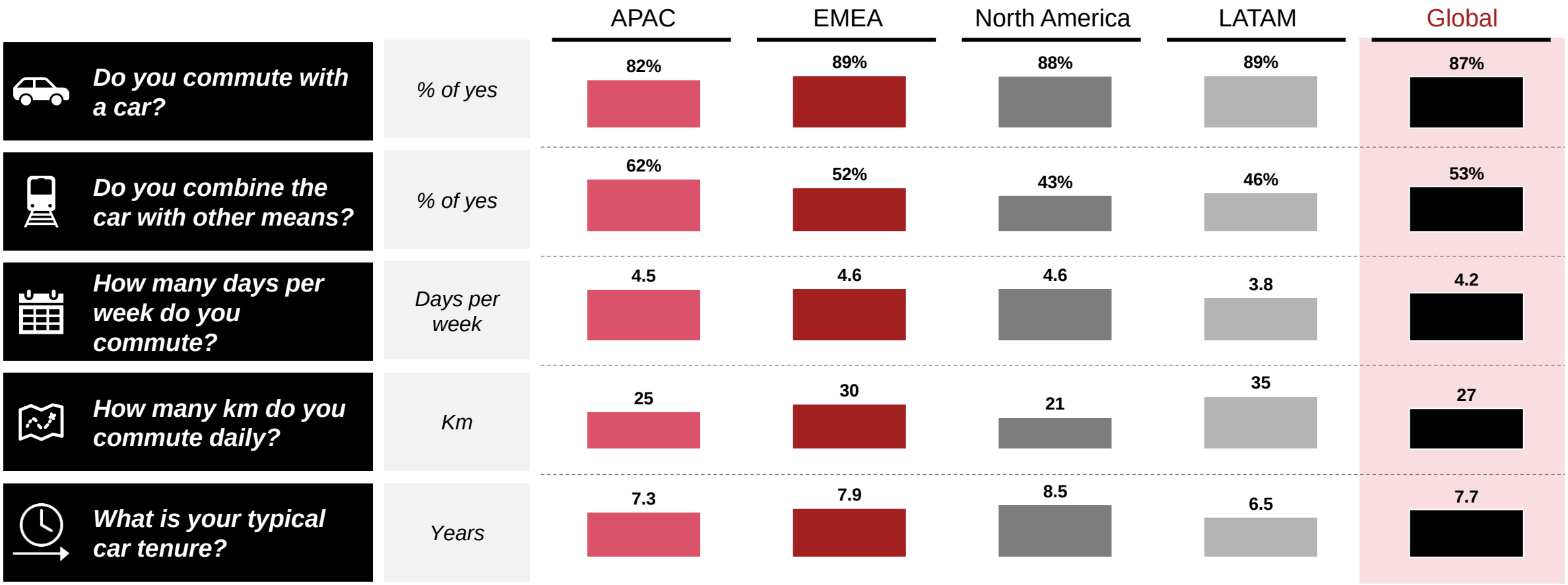


Source: Strategy& analysis on feedback from consumer survey

Prospects show region-based differences in demographics and mobility, pointing to diverse needs in prospective EVs

Prospects – Regional differences (2/2)

\# *10,485 respondents*



Source: Strategy& analysis on feedback from consumer survey

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

Key personas





	Tech Enthusiast	Dreamers	Mainstream	Luxurious	Frugal
Environmental Conscience	Concerned about the environment, but not their top priority	Environment and climate change are top priorities	Not particularly concerned about the environment	Environment is among the lowest priorities	Concerned about the environment but not their top priority
Technology Confidence	Early adopter, has high confidence with technology	Digital native, feels comfortable with technology	Digital native, feels comfortable with technology	Buys mainstream technology, but uses basic functionalities	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	Important but not a priority, seeks good price/quality ratio	Price is not a concern	Price conscious, always looking for bargains
Car Usage	Combines the car with other means of transport	Doesn't use car whenever possible	Combines the car with other means of transport	Uses car as primary transportation	Minimize car usage preferring cheaper alternatives

Source: Strategy& analysis on feedback from consumer survey

Tech Enthusiasts, Dreamers and Luxurious consistently demonstrate the strongest intent to make a purchase in the near future

Focus on key personas – EV purchase intention





APAC EMEA NA LATAM

	Tech Enthusiast	Dreamers	Mainstream	Luxurious	Frugal
Cluster size	31% 29% 17% 32%	19% 14% 16% 21%	39% 44% 48% 38%	6% 8% 6% 8%	6% 6% 13% 2%

Focus on next slide

Key target – focus in next slides

Weighted Average 66%

Intention to buy EV

87% 79% 59% 51% 22%

EV Preference

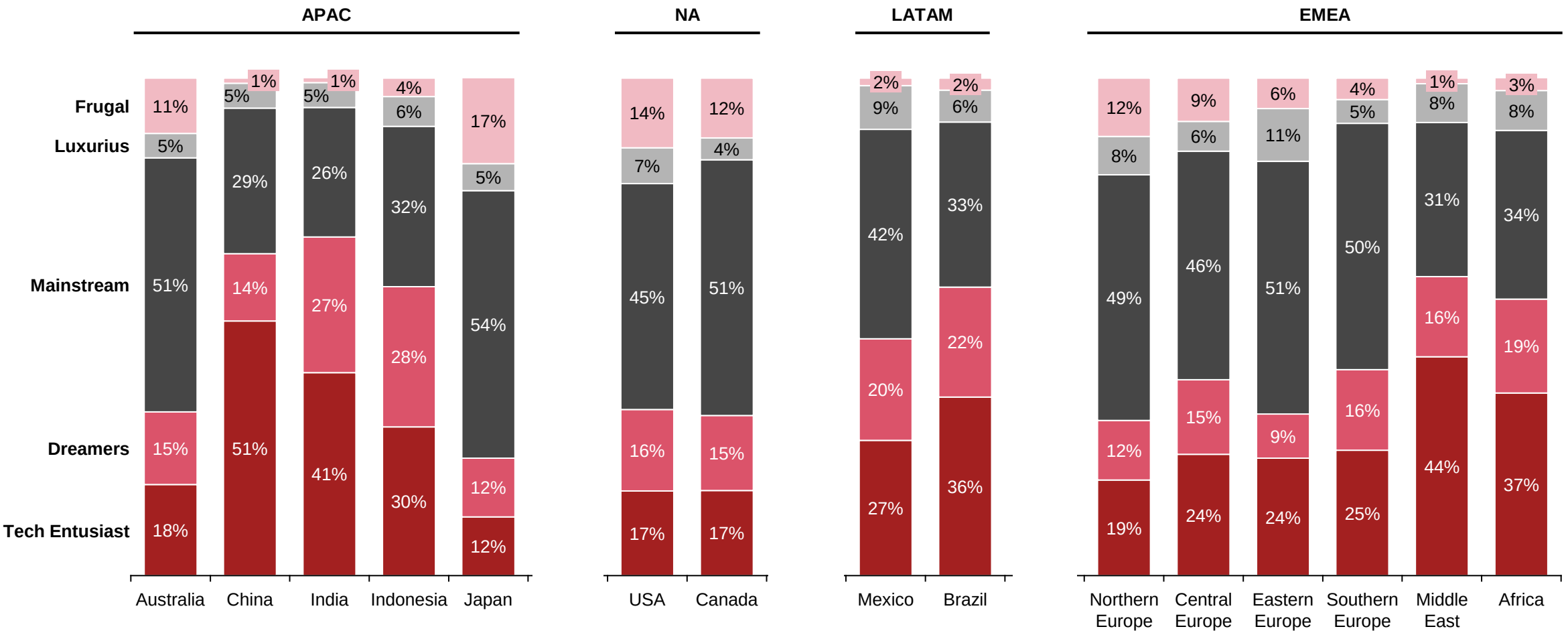
BEV PHEV Persona's preference

59% 41% | 54% 46% | 46% 54% | 48% 52% | 39% 61%

Source: Strategy& analysis on feedback from consumer survey

China and India lead in terms of the percentage of Tech Enthusiasts and Dreamers, indicating a high willingness to purchase EV

Cluster size per country



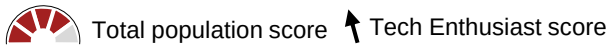
Source: Strategy& analysis on feedback from consumer survey

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

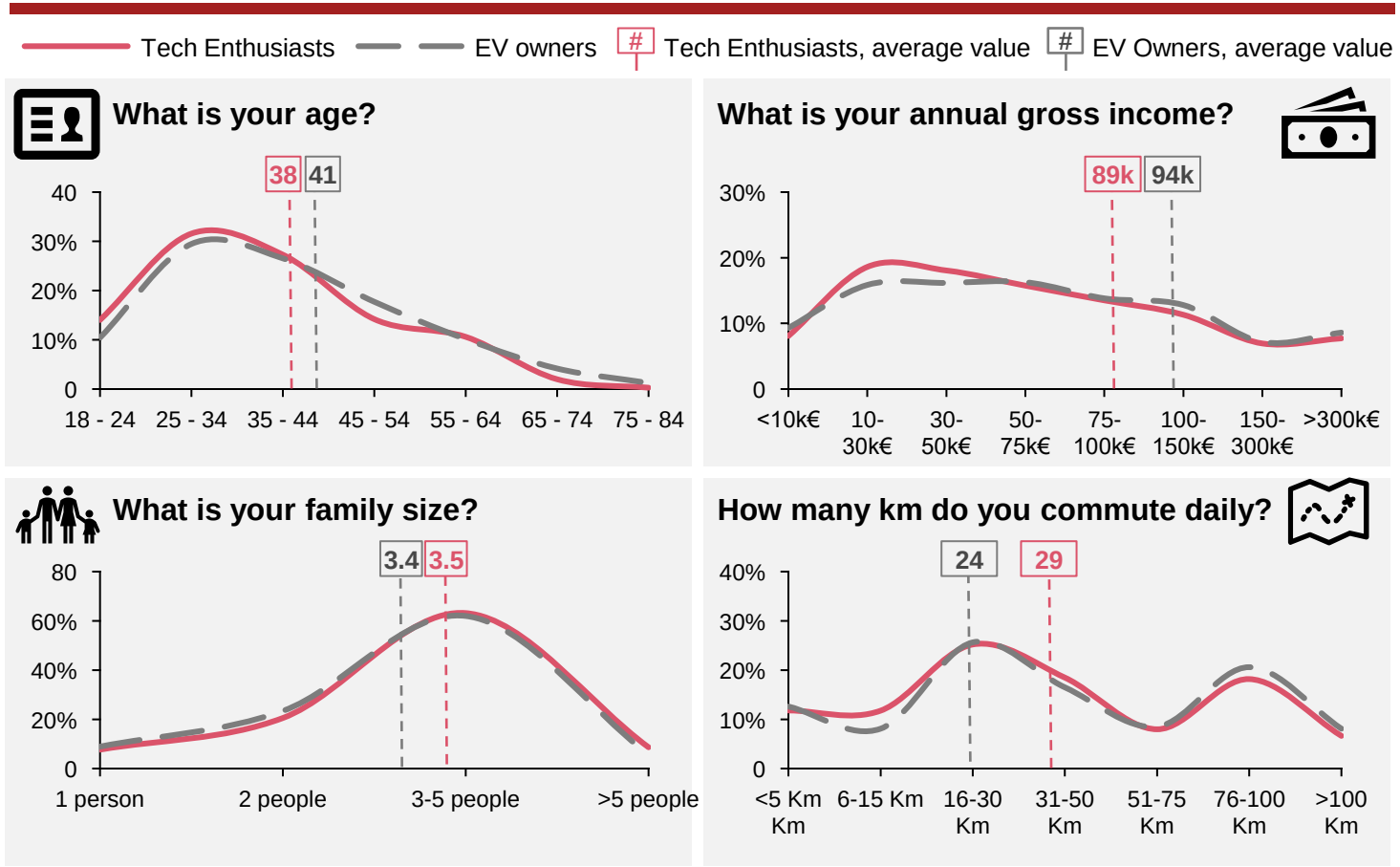
Focus on target customers – Tech Enthusiasts

Tech enthusiast

Intention to buy EV within 2 yrs.	68%
Intention to buy online	60%
Environmental Conscience	Concerned about the environment, but not their top priority
Technology Confidence	Early adopter, has high confidence with technology
Price Sensitivity	Willing to pay extra to gain early access to technologies
Car Usage	Combines the car with other means of transport



Profiling EV prospects with intention to buy



Note: percentages may not total 100% due to rounding
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 – Dreamer

Dreamer

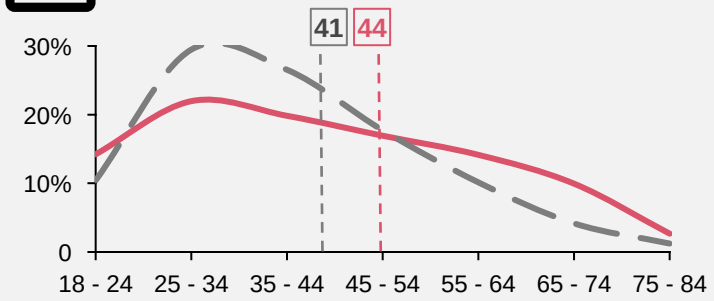
Intention to buy EV within 2 yrs.	52%
Intention to buy online	45%
Environmental Conscience	Environment and climate change are top priorities — 4.3
Technology Confidence	Digital native, feels comfortable with technology — 3.6
Price Sensitivity	Is willing to pay higher price for a good cause — 2.0
Car Usage	Doesn't use car whenever possible — 2.3

Total population score | Tech Enthusiast score

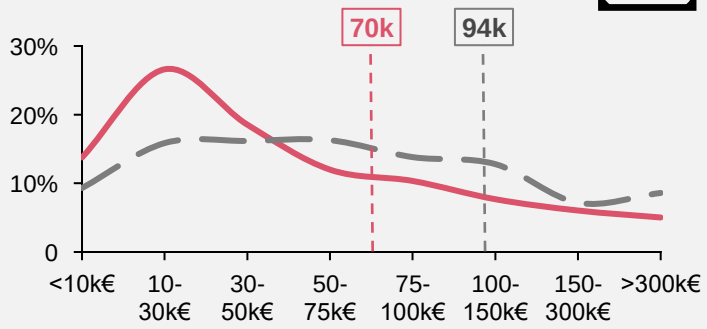
Profiling EV prospects with intention to buy

Dreamer | EV owners | # Dreamer, average value | # EV Owners, average value

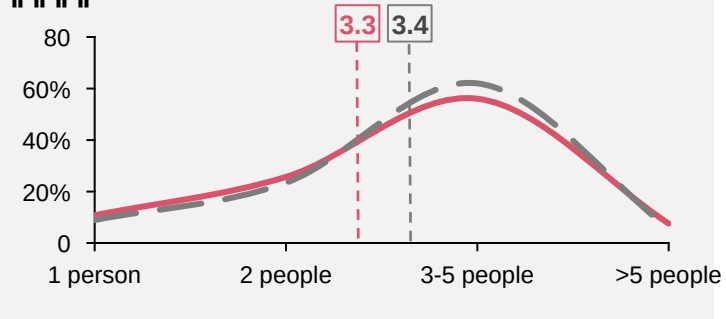
What is your age?



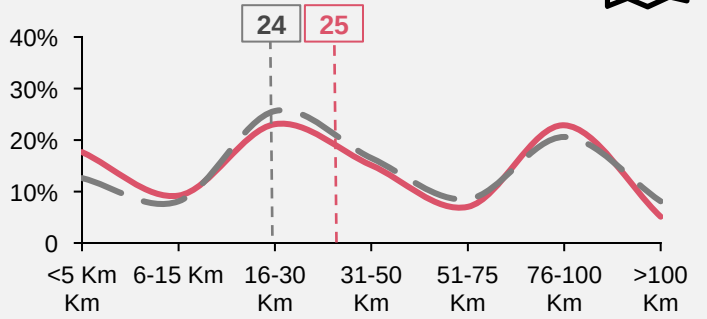
What is your annual gross income?



What is your family size?



How many km do you commute daily?



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

Mainstream tend to be more rational than emotional with their purchases, pushing OEMs to propose more affordable vehicles

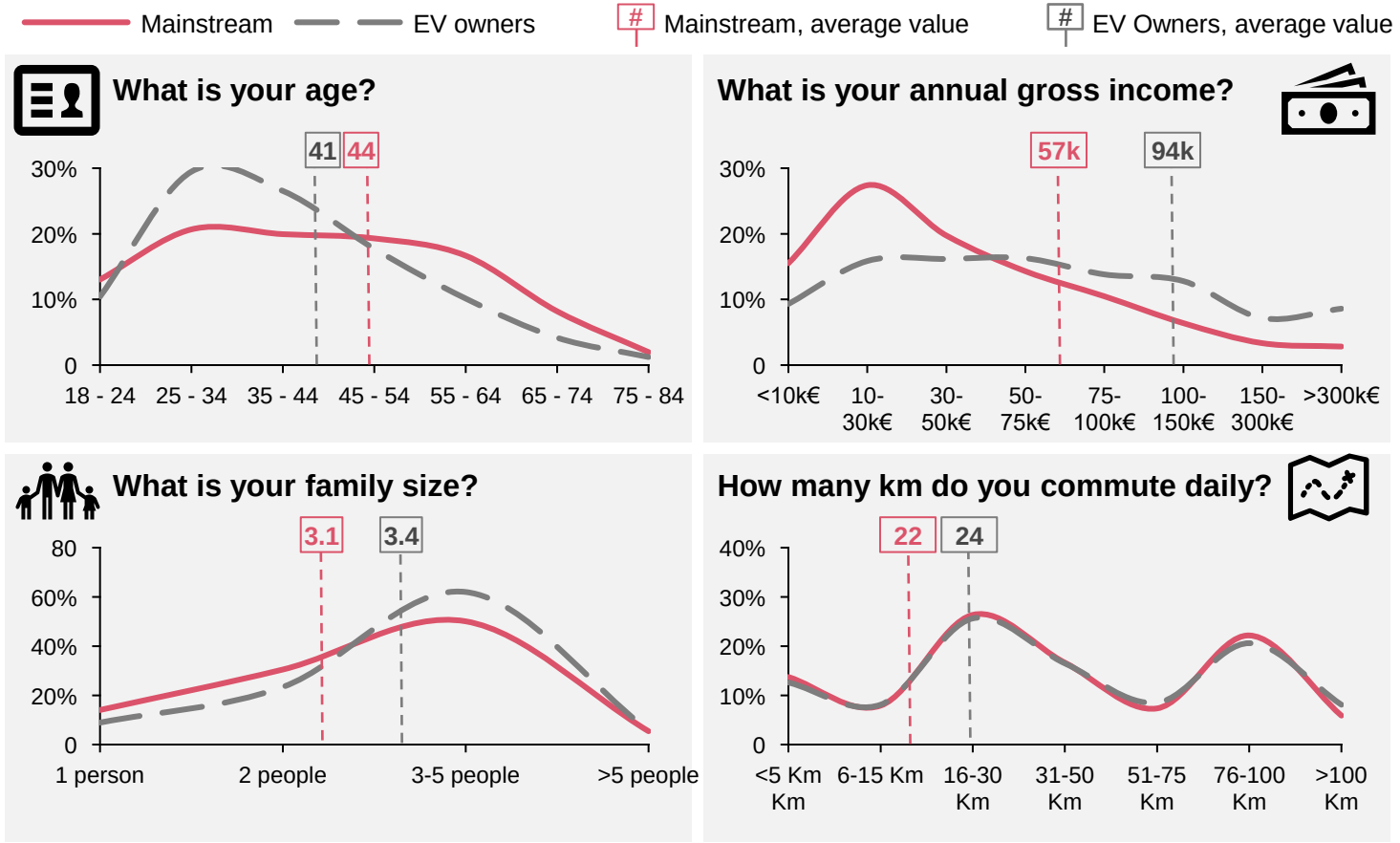
Focus on target customers – Mainstream

Mainstream

Intention to buy EV within 2 yrs.	32%
Intention to buy online	35%
Environmental Conscience	Not particularly concerned about the environment
Technology Confidence	Digital native, feels comfortable with technology
Price Sensitivity	Important but not a priority, seeks good price/quality ratio
Car Usage	Combines the car with other means of transport

Total population score ↑ Tech Enthusiast score

Profiling EV prospects with intention to buy



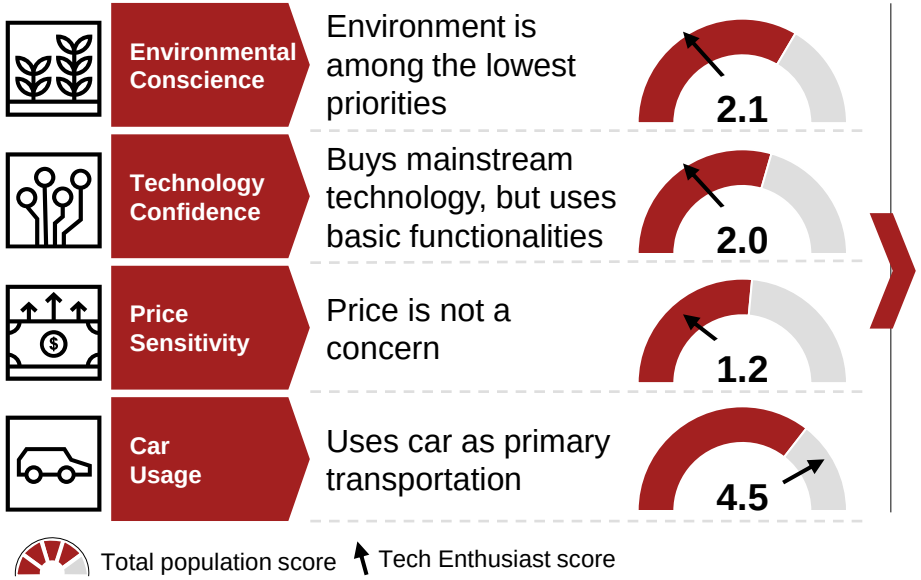
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Luxurious, individuals with less price sensitivity who frequently use cars, serve as a key target demographic for premium OEMs

Focus on target customers – Luxurious

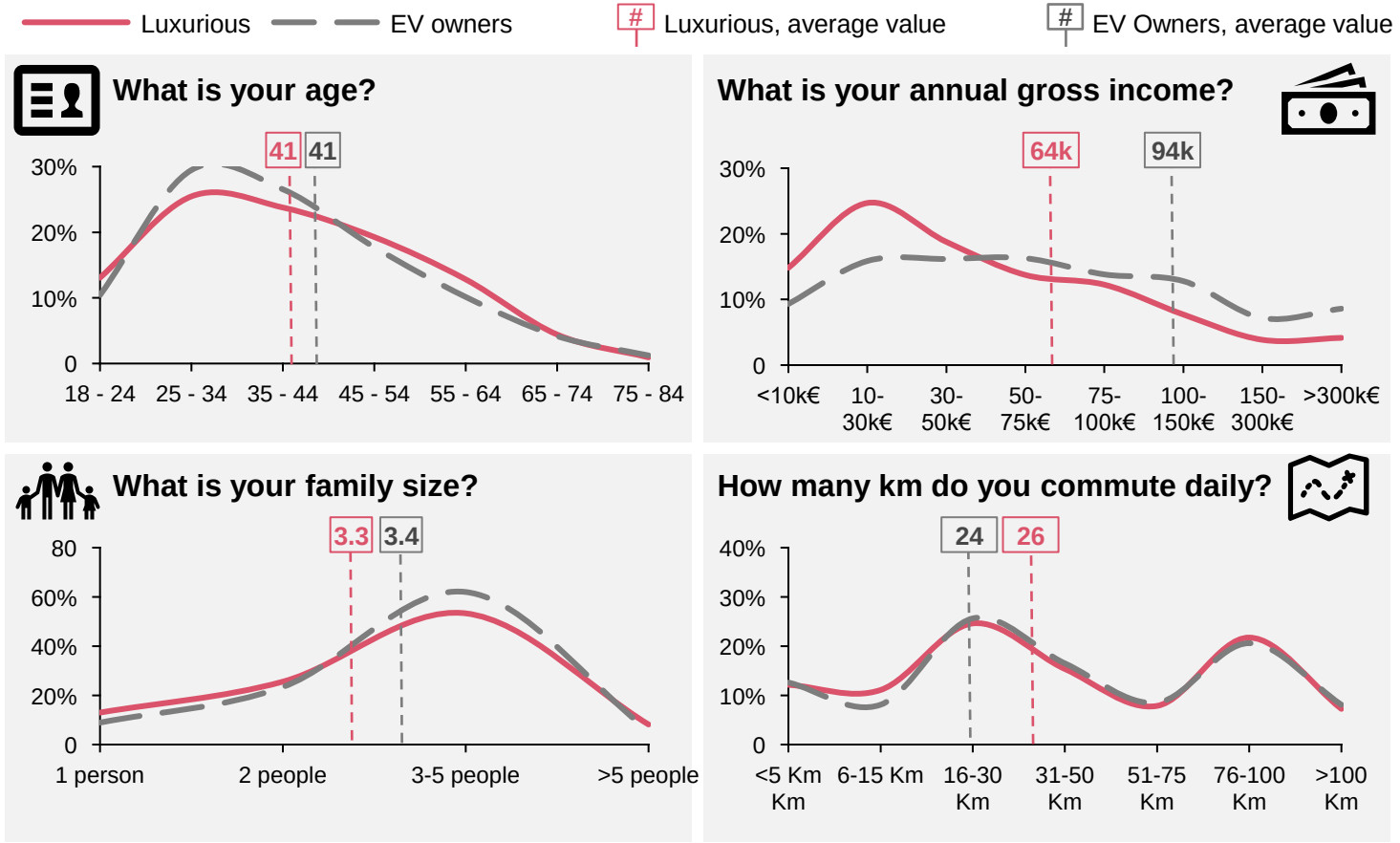
Luxurious

Intention to buy EV within 2 yrs.	30%
Intention to buy online	36%
Environmental Conscience	Environment is among the lowest priorities
Technology Confidence	Buys mainstream technology, but uses basic functionalities
Price Sensitivity	Price is not a concern
Car Usage	Uses car as primary transportation



Total population score Tech Enthusiast score

Profiling EV prospects with intention to buy

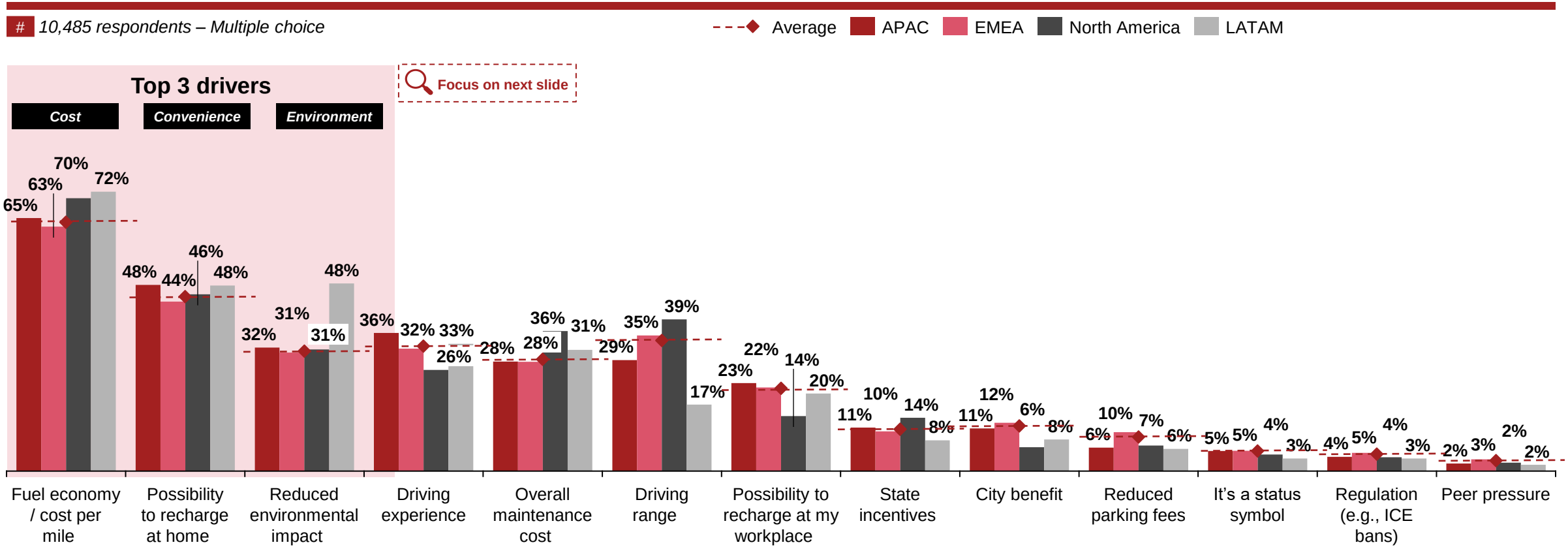


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

The primary motivations to consider an EV are lower operating expenses, convenience, and a reduced environmental footprint

Key purchasing drivers

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



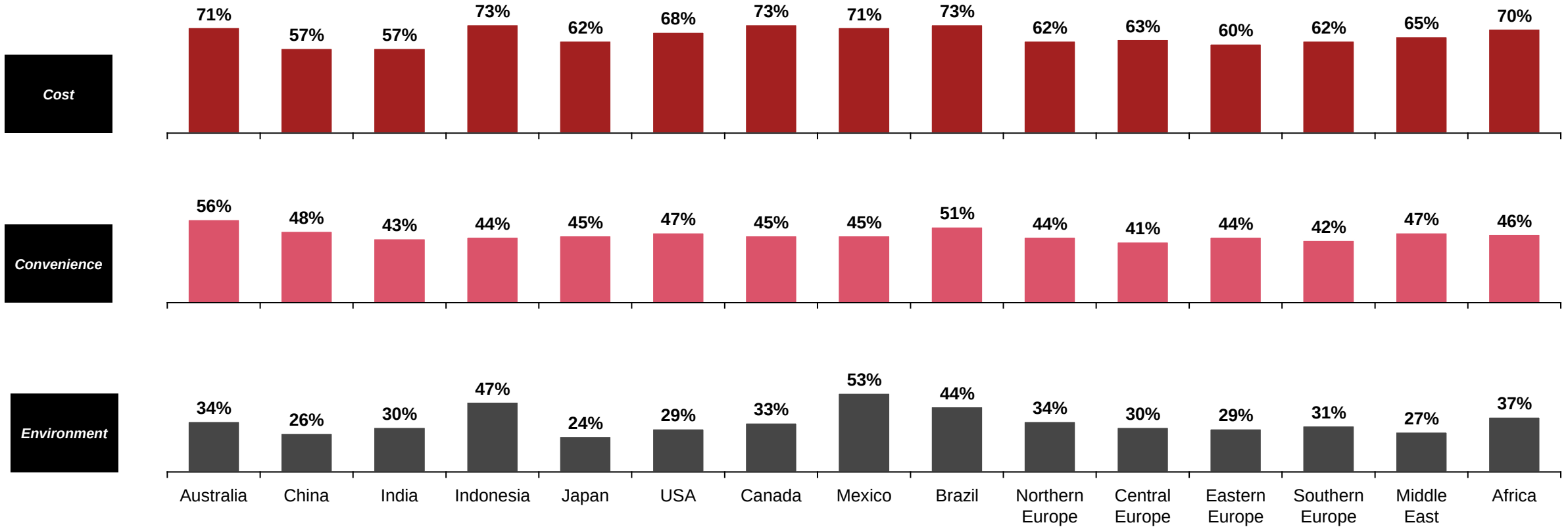
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Every country exhibits fuel economy/cost per mile response rates of 55% or higher, demonstrating it as a key purchasing driver

Deep dive on top 3 key purchasing drivers

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

10,485 respondents – Multiple choice

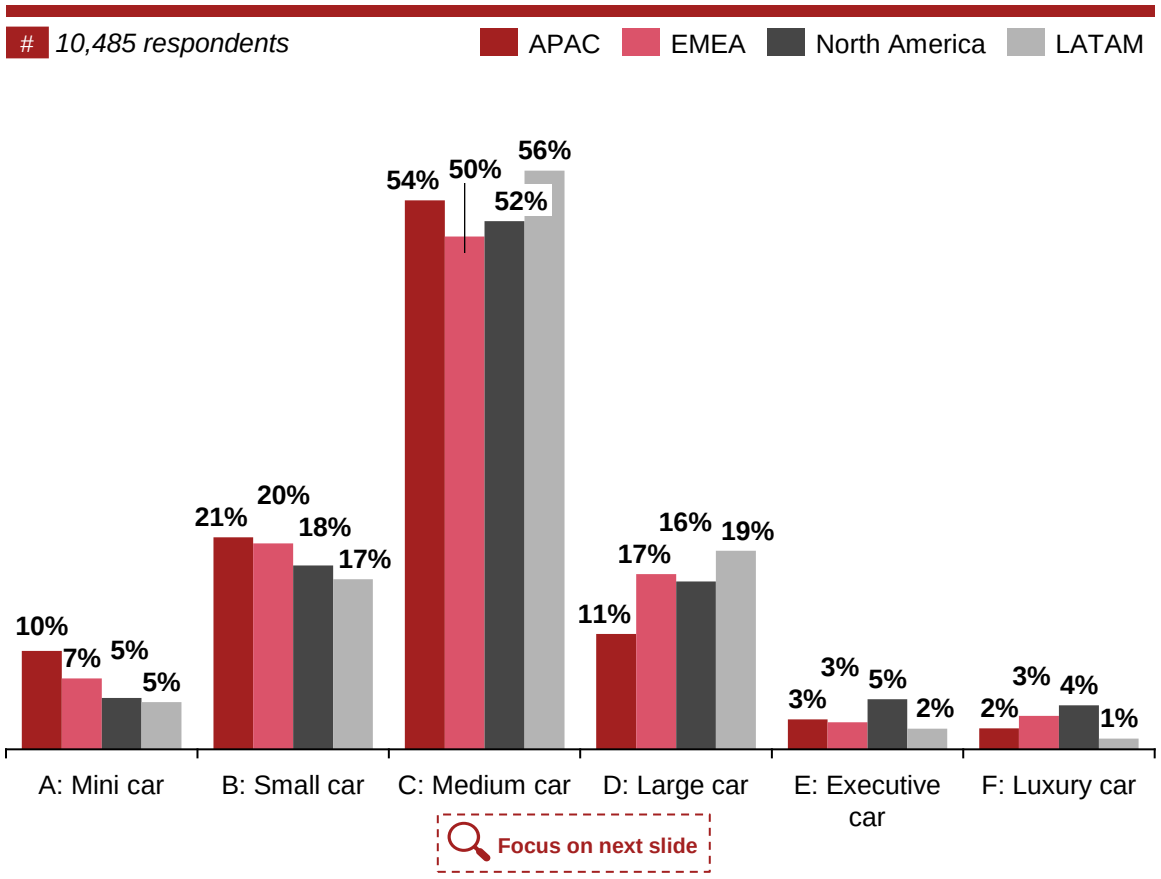


Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Prospect declared a significant interest in C-segment/Compact vehicles and SUV, with a consistent distribution across all regions

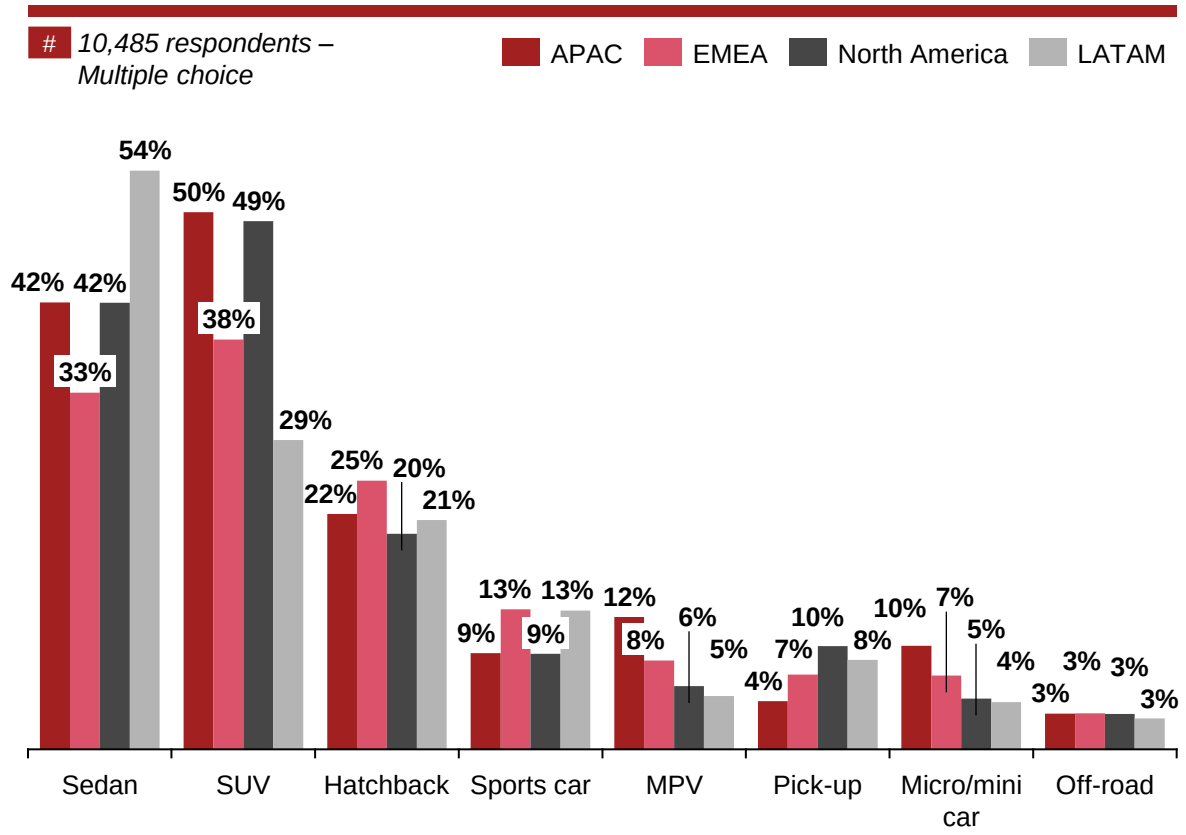
Purchasing preferences

What type of car would you buy?



Focus on next slide

What type of body type?



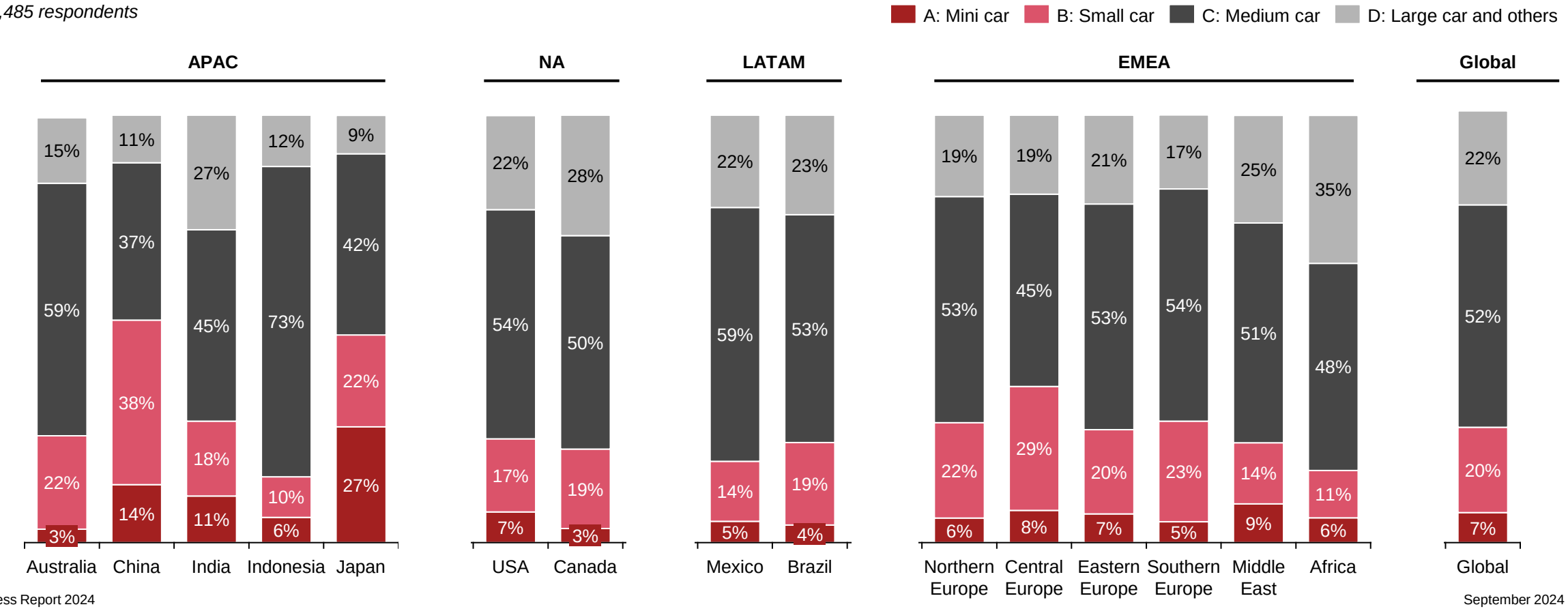
Source: Strategy& analysis on feedback from consumer survey

Segments B and C are preferred in most countries, while D-segment is preferred by 1/3 of the respondents in Africa, Canada and India

Purchasing preferences

What type of car would you buy?

10,485 respondents

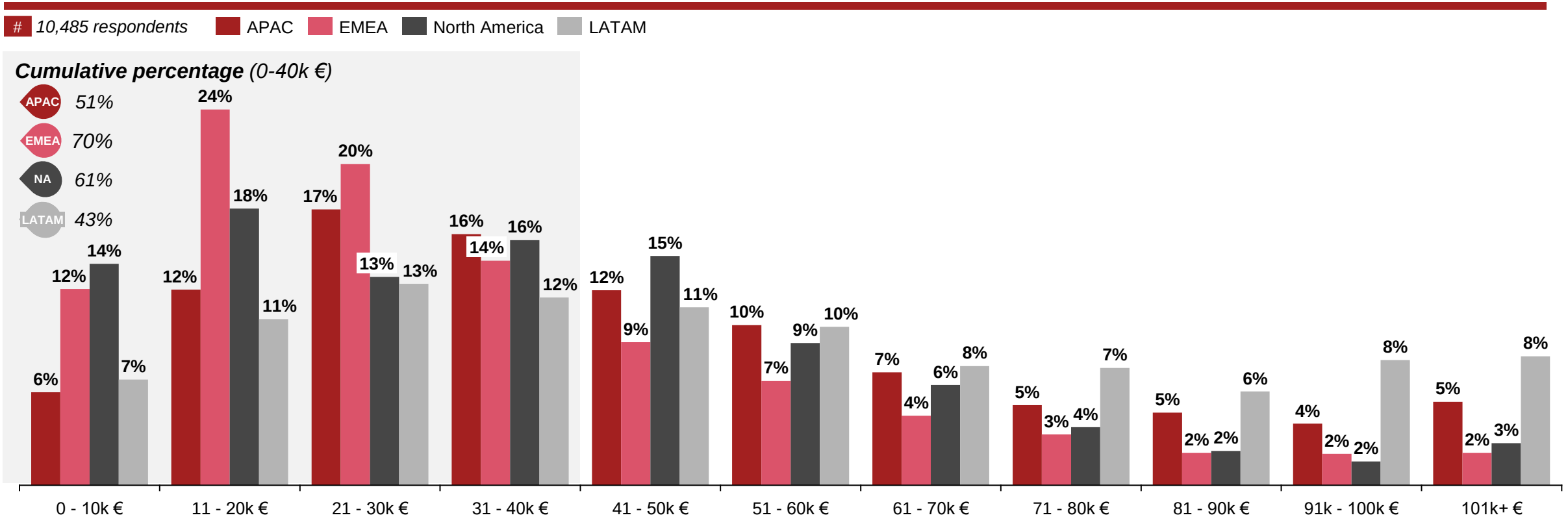


Source: Strategy& analysis on feedback from consumer survey

40-70% of EV prospects tend to expect their new EV to have a price point under 40k€

Purchasing preferences

How much are you expecting to pay your next EV?



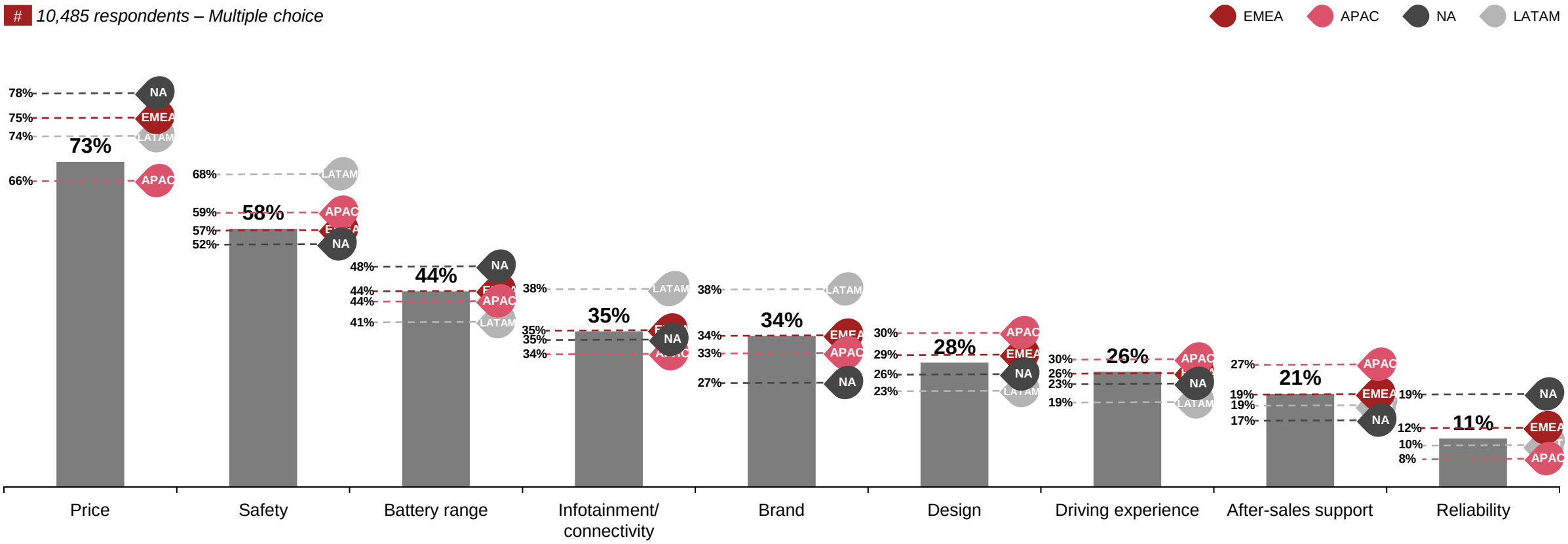
Source: Strategy& analysis on feedback from consumer survey

The pivotal factors when purchasing a new EV are the overall price, safety features, and battery range

Purchasing criteria

Which are the most important criteria when purchasing a new electric car?

10,485 respondents – Multiple choice



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

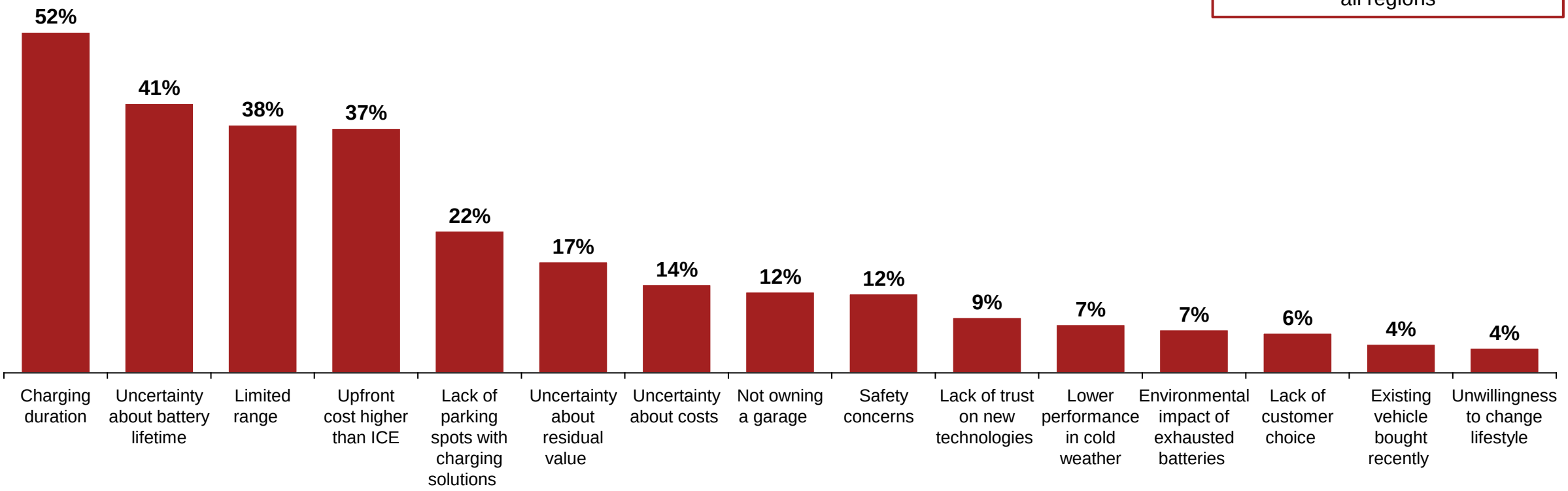
The main obstacles deterring potential EV buyers from purchasing include charging duration, battery lifespan and driving range

Key purchasing barriers

What are the key factors that discouraged you to buy an electric vehicle up until now?

10,485 respondents – Multiple choice

Similar factors across all regions

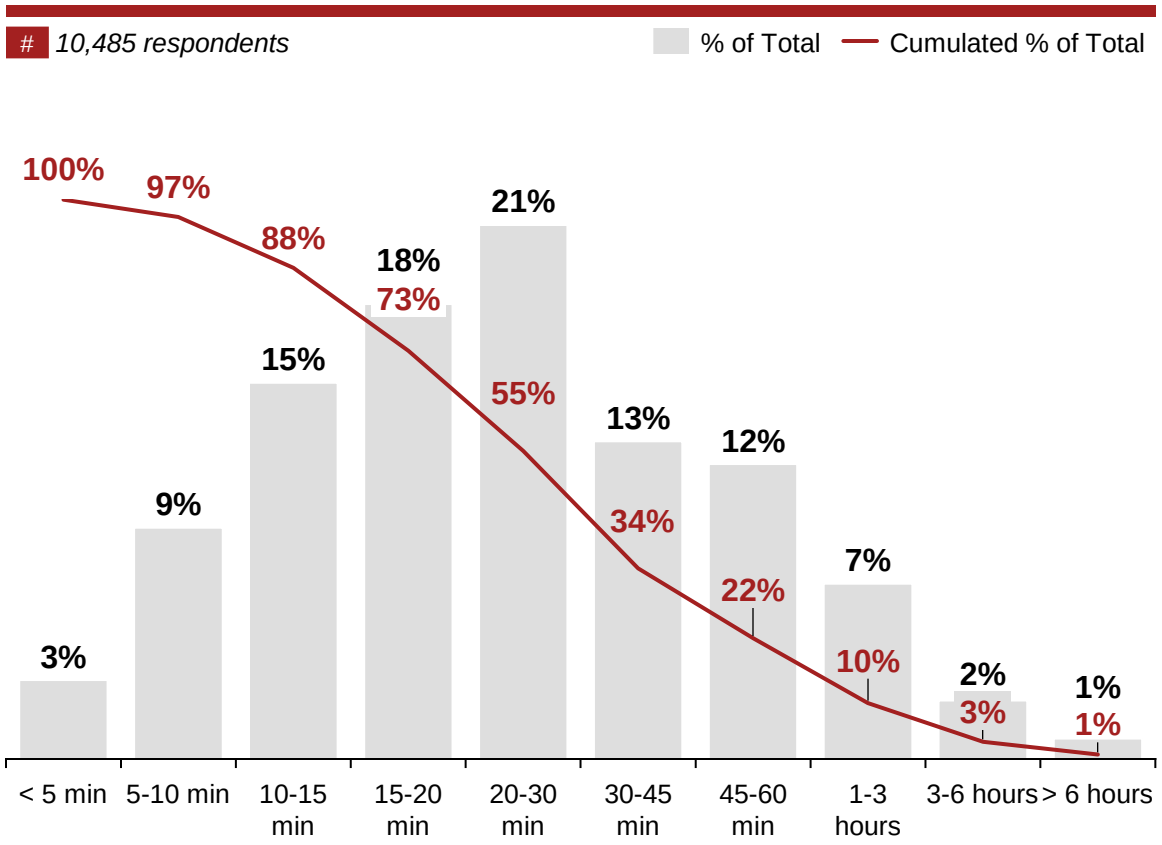


Source: Strategy& analysis on feedback from consumer survey

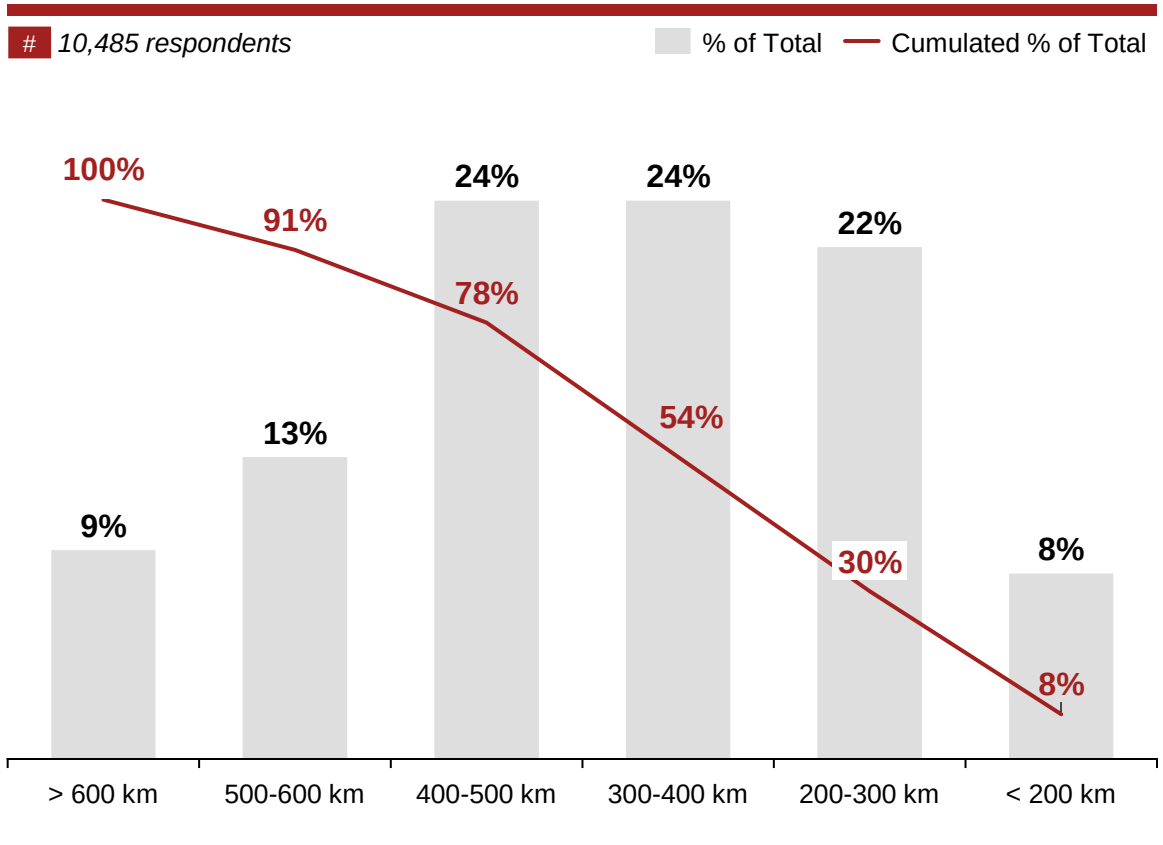
55% of EV prospects would consider driving range of 300-400km acceptable, provided that they could charge their car in under 30 mins

Charging time and driving range expectations

How long would you consider acceptable to charge your car?



What would you consider an acceptable driving range?



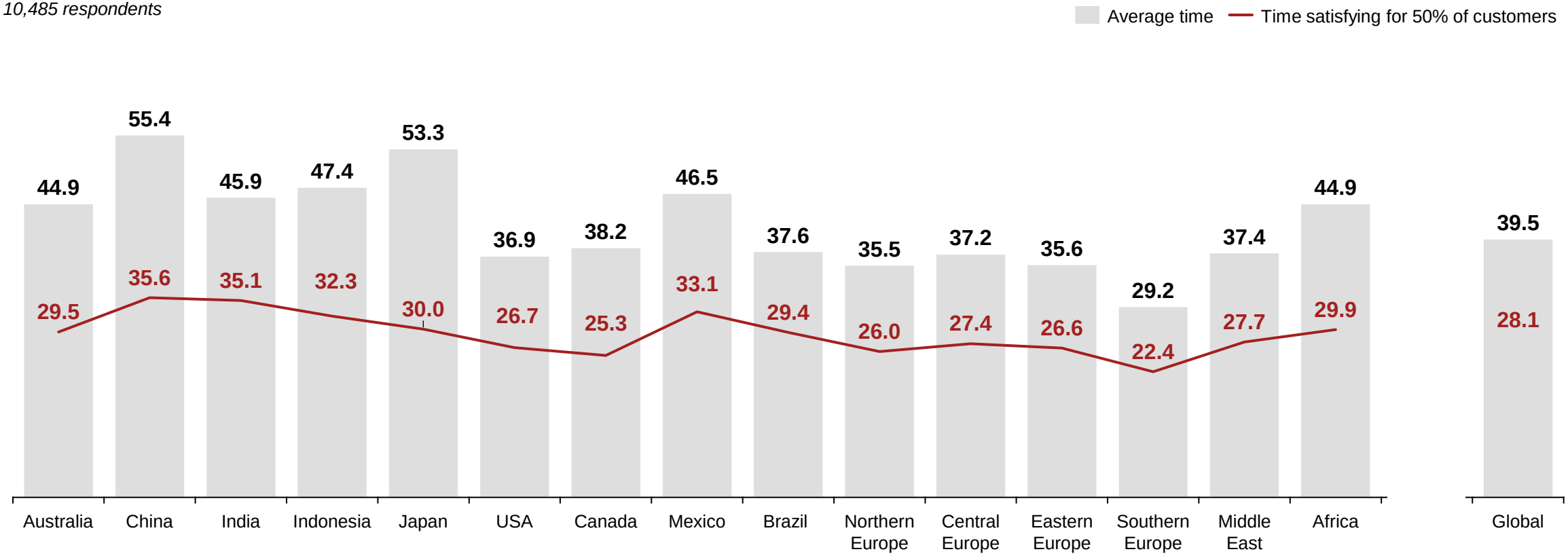
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

50% of Southern European consumers prefer a 22-minute car recharge time, compared to 35.6 minutes for Chinese consumers

Charging time expectations per country

How long would you consider acceptable to charge your car?

10,485 respondents



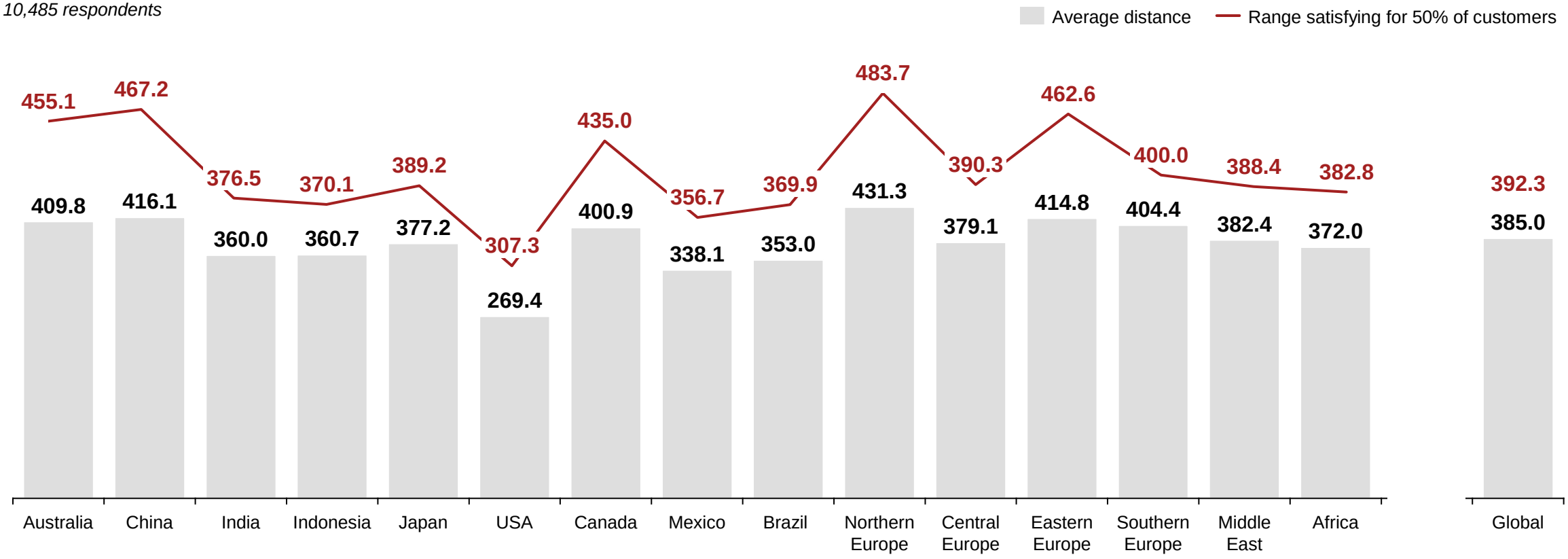
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

The highest driving expectancy of at least 483 kilometres comes from Northern European countries

Driving range expectations per country

How long would you consider acceptable the driving range of your car?

10,485 respondents



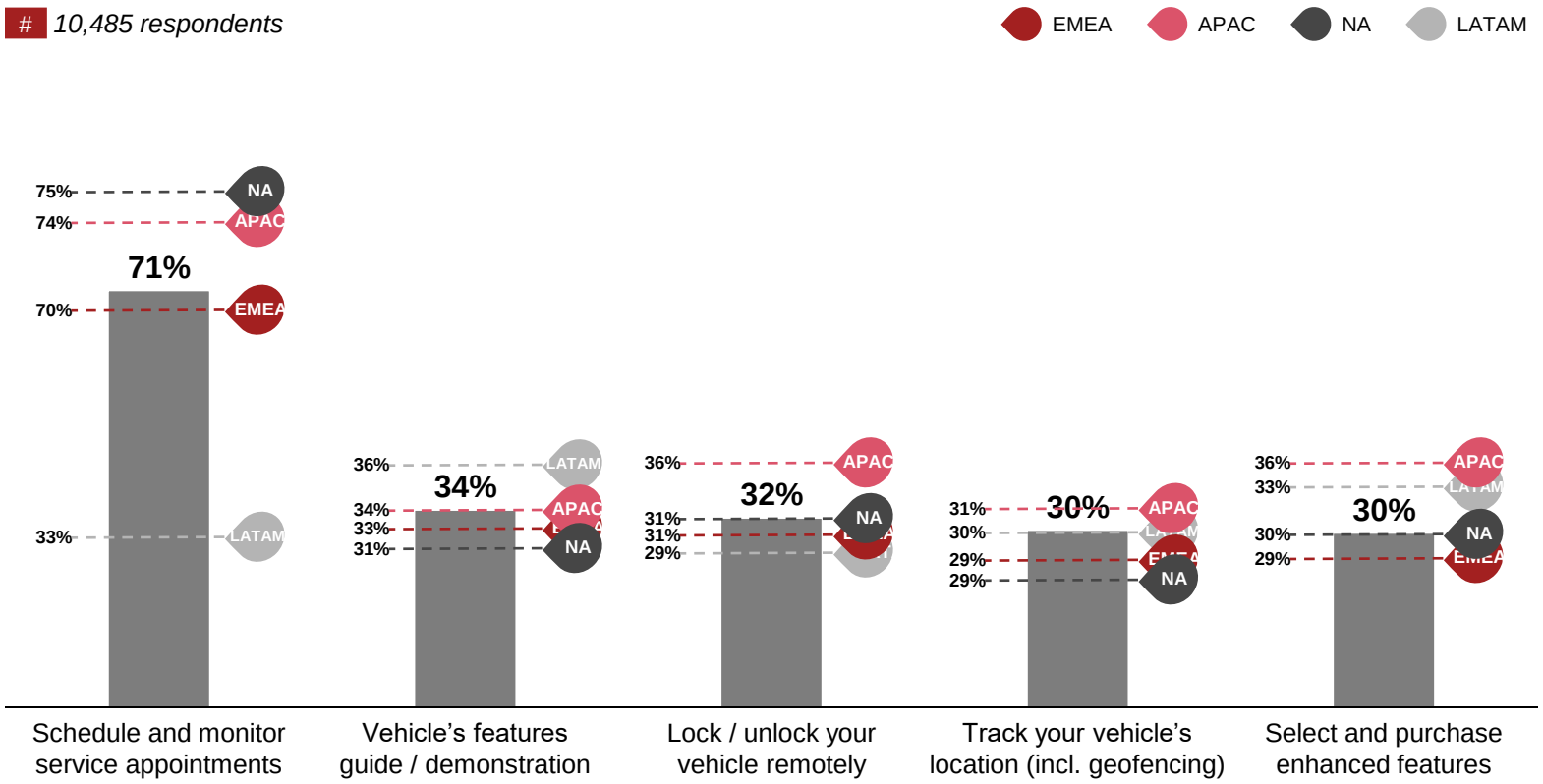
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

OEMs car apps are seen as a useful tool to manage the car lifecycle, scheduling service appointments and remote management of their EV

Digital app

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

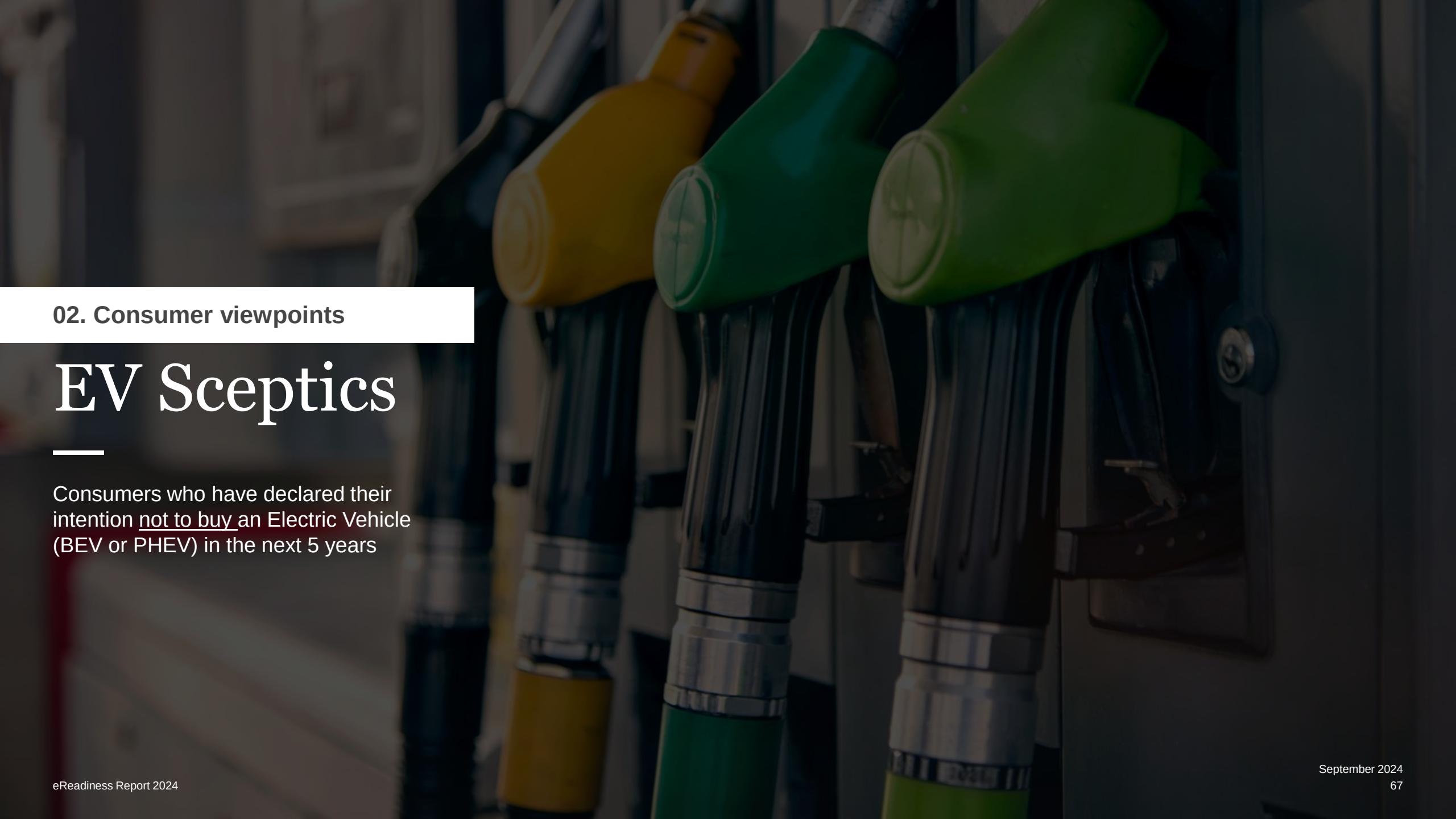
10,485 respondents



Other services to be included in car app

- 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



02. Consumer viewpoints

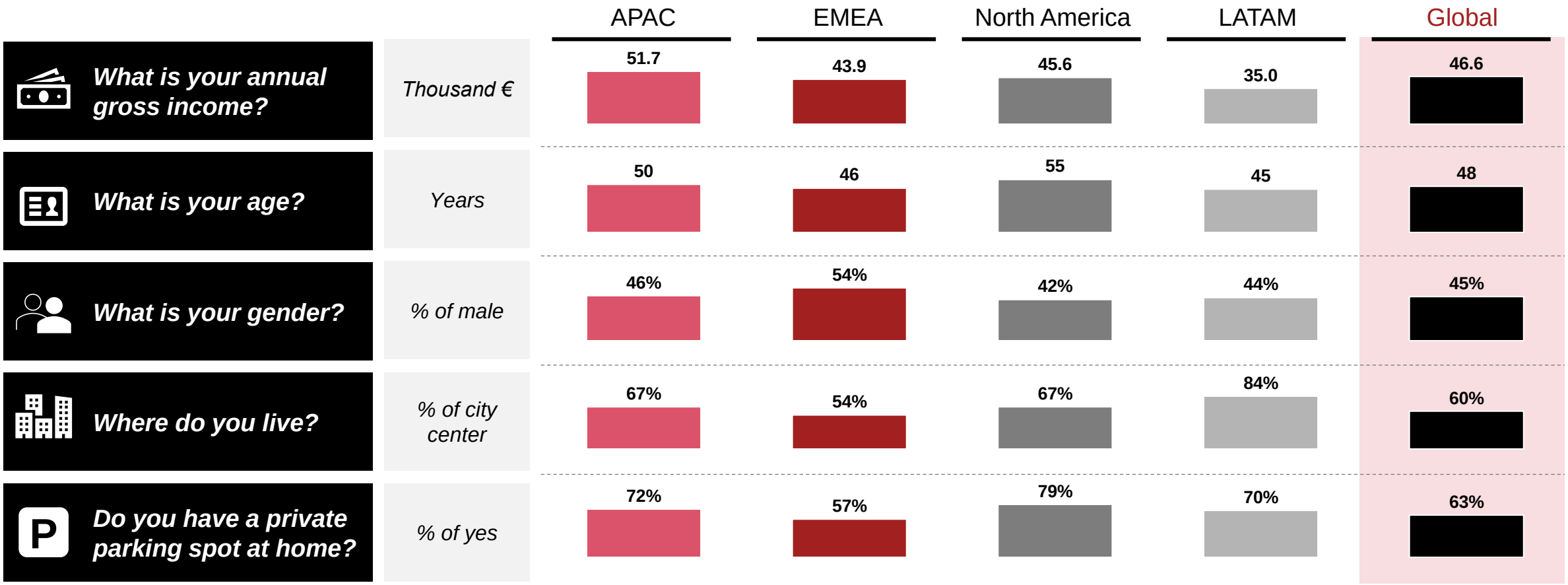
EV Sceptics

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

While showing regional differences, sceptics' demographic and mobility profile still points at a gap to bridge for future EV purchase

Sceptics – Regional differences (1/2)

5,238 respondents

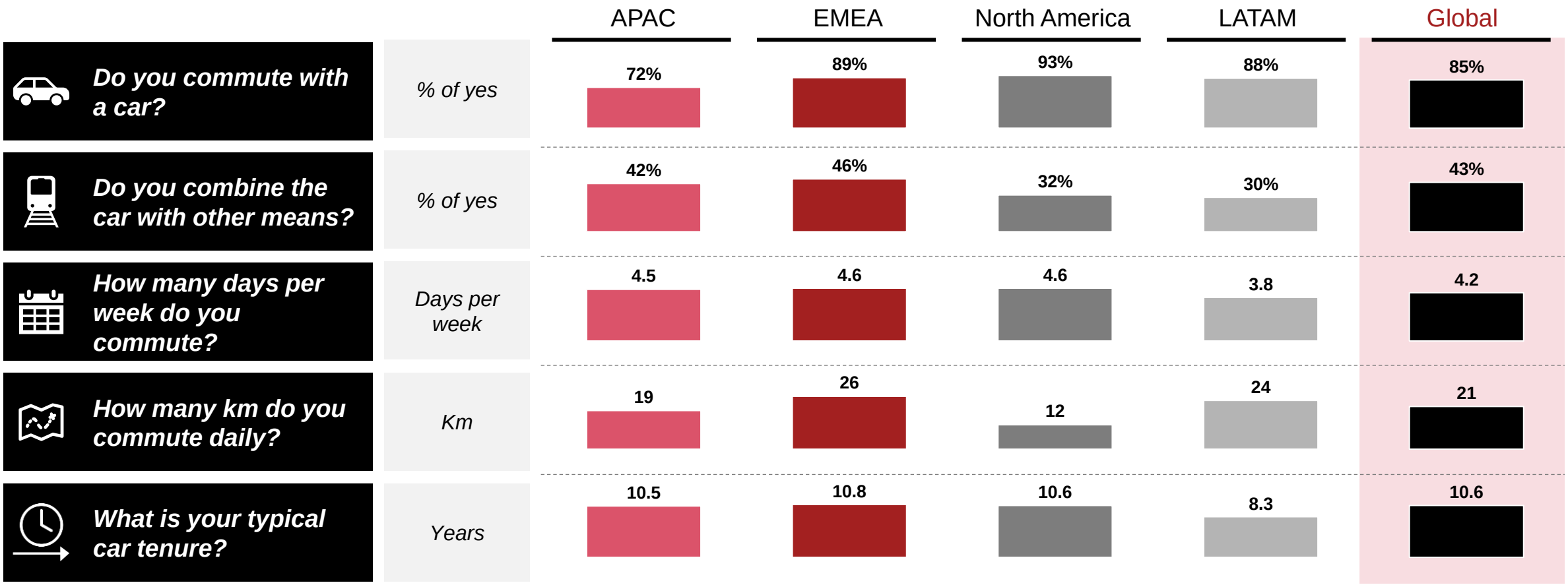


Source: Strategy& analysis on feedback from consumer survey

While showing regional differences, sceptics' demographic and mobility profile still points at a gap to bridge for future EV purchase

Sceptics – Regional differences (2/2)

5,238 respondents



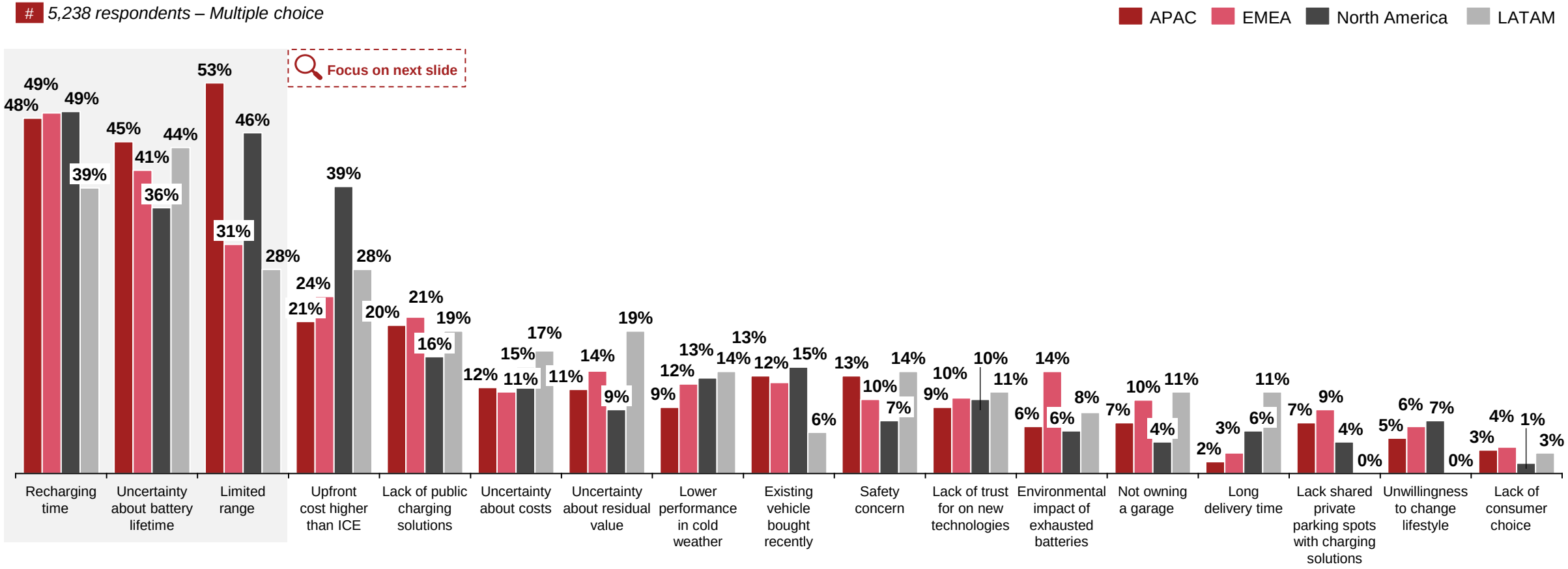
Source: Strategy& analysis on feedback from consumer survey

Key inhibitors to buy an EV are primarily the charging time, battery lifespan, and limited range

Main reasons for rejection

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

5,238 respondents – Multiple choice



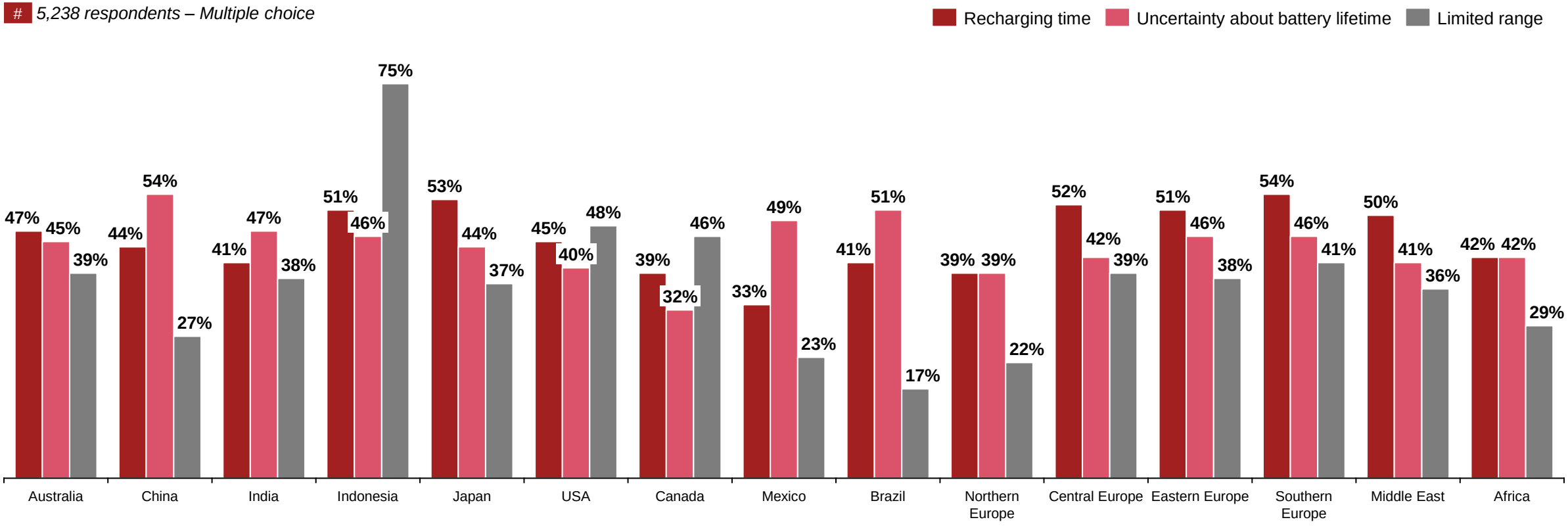
Note: percentages may not total 100% due to rounding
Source: Strategy& analysis on feedback from consumer survey

Consumers in Southern Europe prioritize charging time, while battery life uncertainty is a major concern in China and limited autonomy in Indonesia

Deep dive on top 3 main reasons for rejection

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

5,238 respondents – Multiple choice



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

Agenda

1. Executive Summary
2. Consumers viewpoint
3. **eReadiness Index**
4. Contacts

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

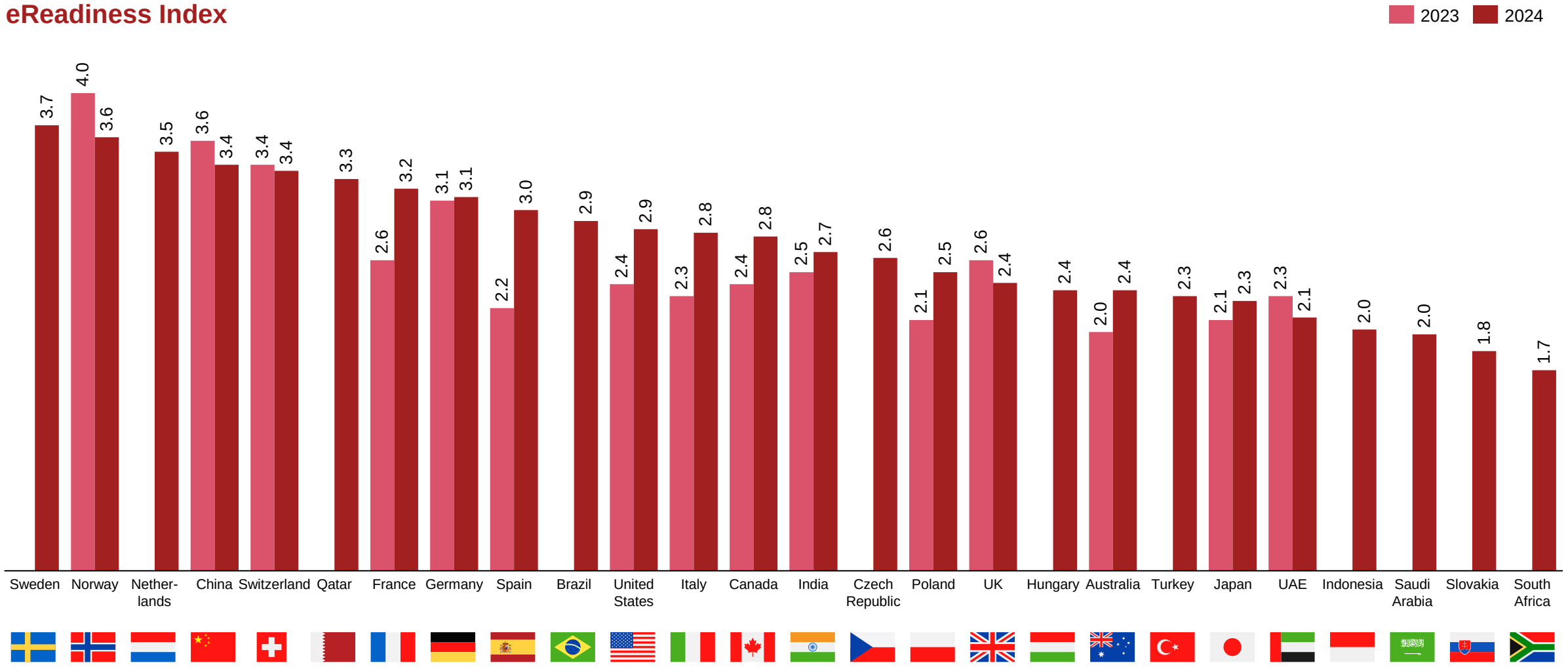
Demand

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

Notes: Using official OECD data for gross income
Source: Strategy& Analysis

Northern EU countries are the most eReady ones while Middle East, Slovakia and South Africa are least mature for e-mobility

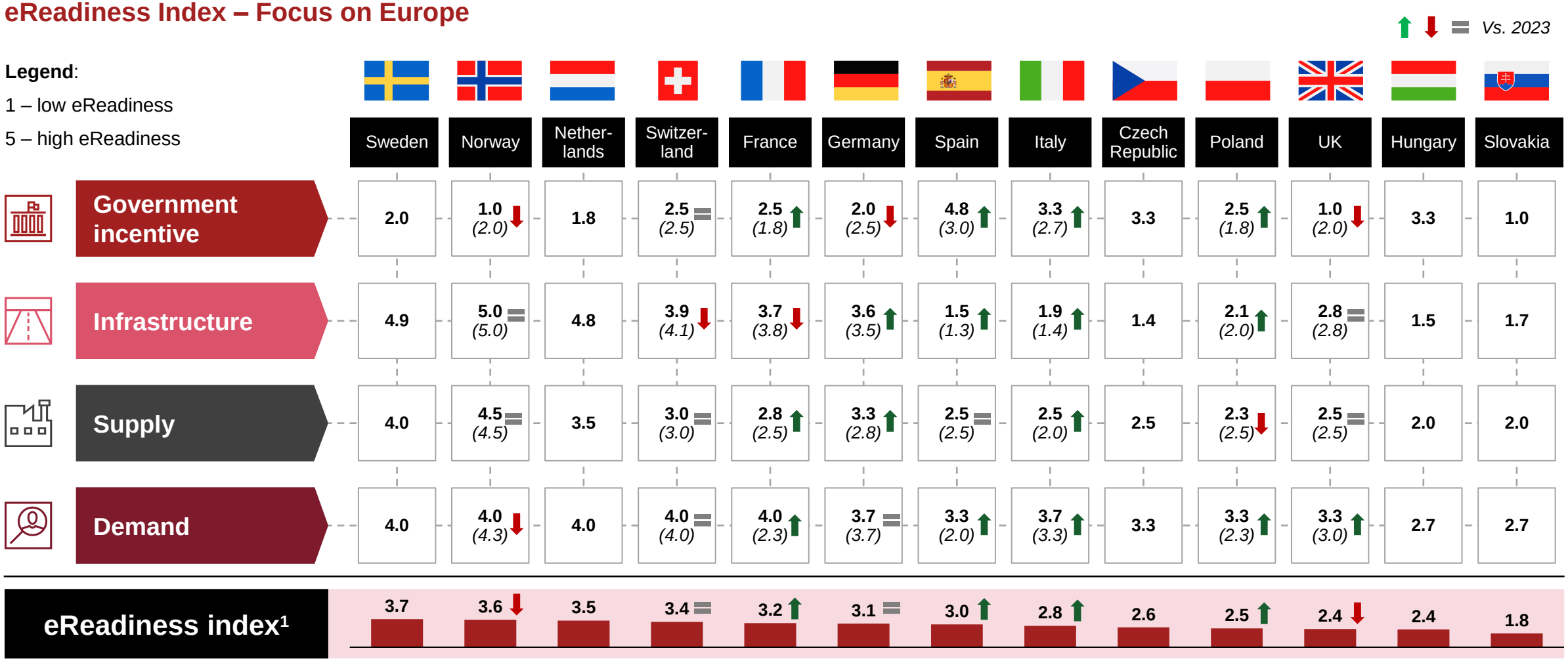
eReadiness Index



Source: Strategy& Analysis

Nordics confirm their readiness for e-mobility, UK looses ground due to grants reduction while Eastern Europe is lagging behind

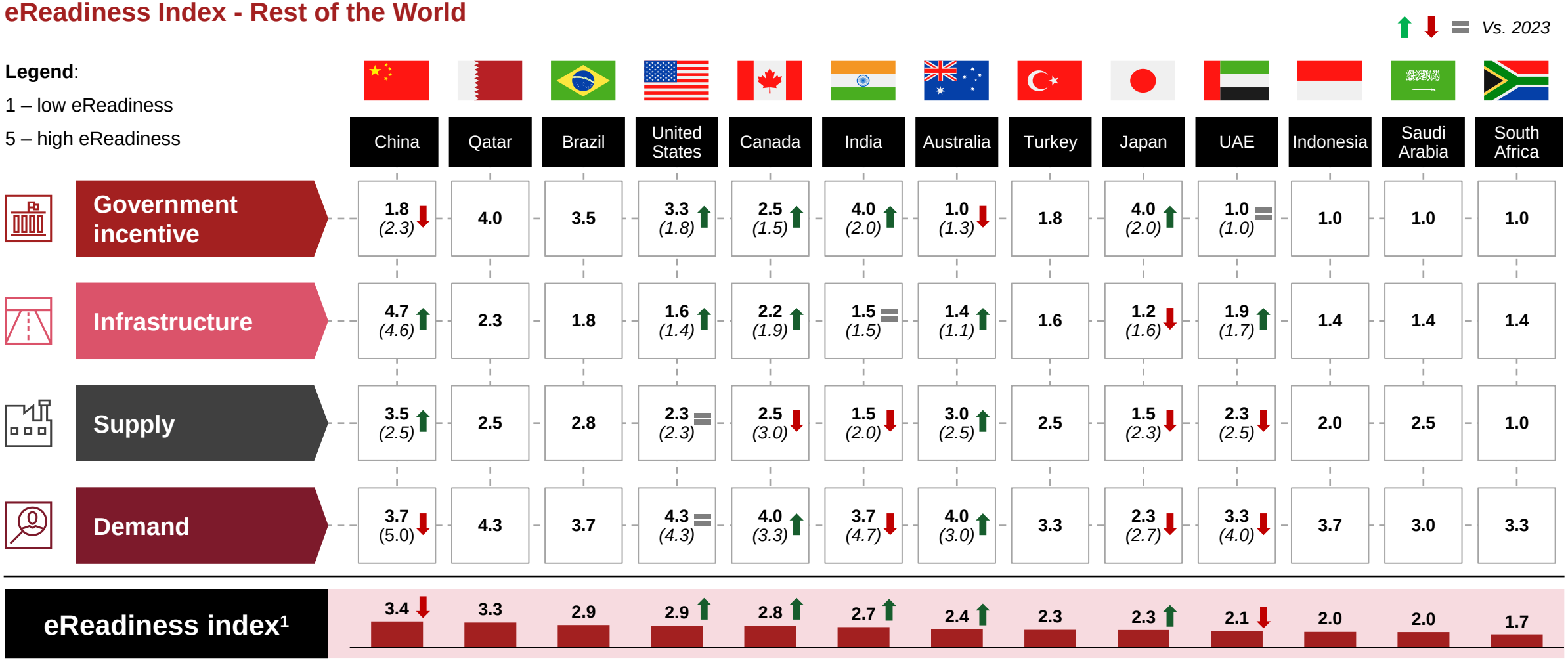
eReadiness Index – Focus on Europe



1) Calculated as average out of all four dimensions; Notes: Using official OECD data for gross income
Source: Strategy& Analysis

For the Other countries, China is the most eReady country across all dimensions while Saudi Arabia and South Africa are least mature for e-mobility

eReadiness Index - Rest of the World



1) Calculated as average out of all four dimensions; Notes: Using official OECD data for gross income
Source: Strategy& Analysis

Government incentives are measured based on consumer fiscal savings

Dimension overview

KPI	Weight	Definition	Scoring
Grants	75%	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	
Registration tax reduction		Exemption or maximum reduction on **one-off registration taxes, import taxes** or CO2/NOx taxes	
Annual ownership tax exemption	25%	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

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

Dimension overview

KPI	Weight	Definition	Scoring
Charging points per thousand cars	50%	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	30%	Ratio of **public fast charging points** (over 150 kW) per km of motorway	**Low** (1): < = 0,1 **High** (5): > = 1
Renewable energy share	10%	Share of **renewable energy produced**[1]	**Low** (1): < = 40% **High** (5): > = 80%
Gasoline vs. electricity cost	10%	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
Source: Strategy& Analysis

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

Dimension overview

KPI	Weight	Definition	Scoring
BEV penetration	50%	Share of **BEVs based on total cars** sold (2022)	**Low** (1): < = 10% **High** (5): > = 50%
Top models annual depreciation	25%	**Depreciation rate**[1] of top 4 selling models by country from 2018 to 2022[2]	**Low** (1): < = -15% **High** (5): > = -5%
Pure EV players	25%	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
Source: Strategy& Analysis

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

Dimension overview

KPI	Weight	Definition	Scoring
Willingness to buy	**33%**	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	**33%**	Share of respondents driving **30 km or less** per day	**Low** (1): < = 50% **High** (5): > = 75%
Household income	**33%**	Average **income of consumers** respondent to the Strategy& survey	**Low** (1): < = 40 €k **High** (5): > = 60 €k

Source: Strategy& Analysis

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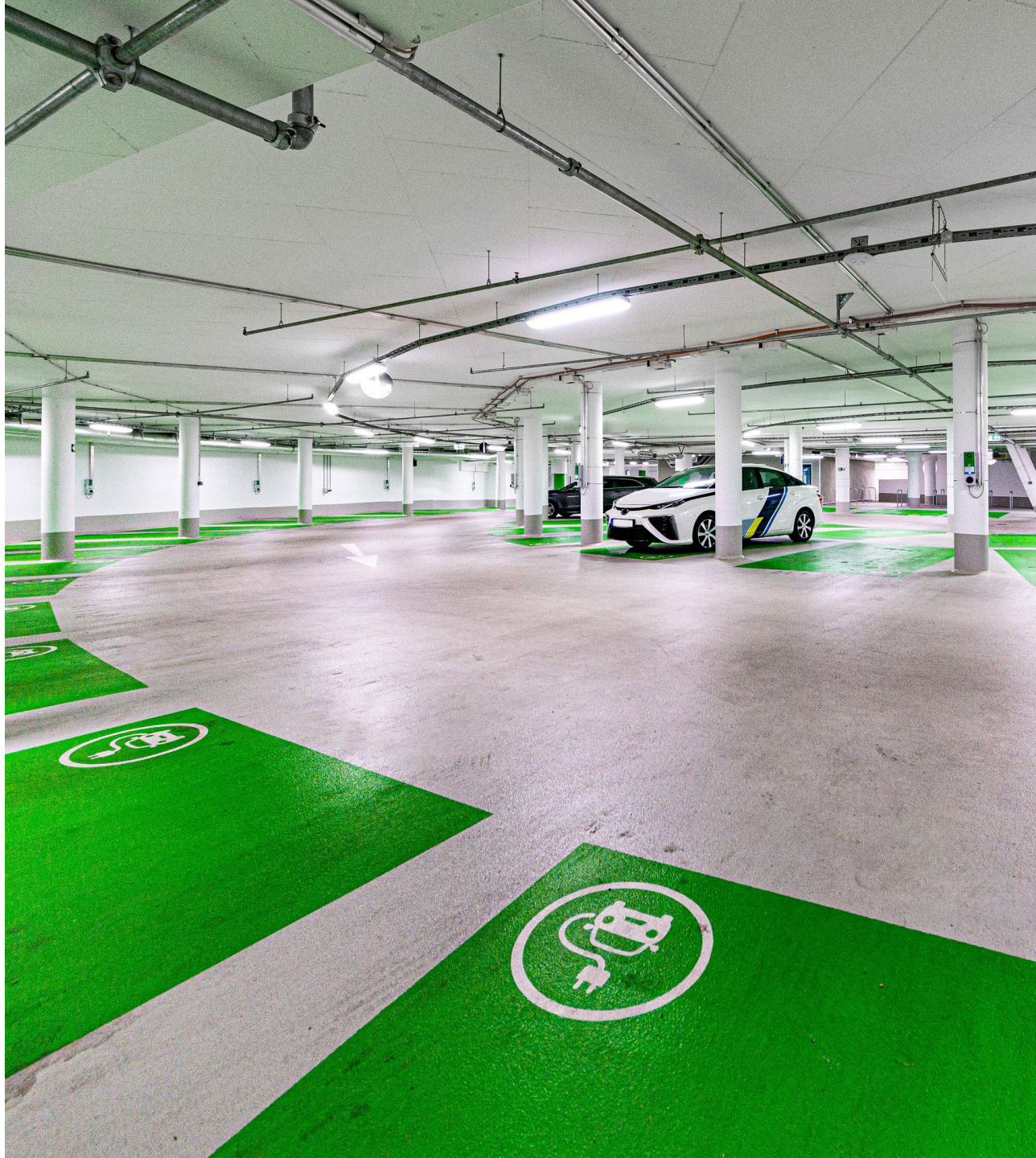

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