J.D. POWER | 君迪

New-Energy Vehicles: Unfolding in China

J.D. Power China "Mobility Disruptors" Survey Series

March 2018

OVERVIEW

Propelled by growing public concerns about the environment and incentive policies, the enthusiasm among consumers in China for new-energy vehicles (mainly electric cars) has been steadily increasing and the NEVs market is booming.

In 2017 in China, more than 770,000 new-energy vehicles were sold, a whopping 53% year-over-year increase, representing a compelling growth rate particularly considering that overall passenger vehicle sales only grew 1.4%.

However, to what extent Chinese customer's enthusiasm and interest in acquiring new-energy vehicles are solely driven by financial incentives is somewhat challenging to assess.

Meanwhile, the new-energy vehicle market is increasing competitive. Not only international brands but also Chinese domestic brands are racing to roll out NEVs models. Consumers' high expectations for new-energy vehicles, especially battery technology, will likely drive manufacturers to enhance research and development efforts for technology advancement and breakthroughs.

The online survey, which was designed and conducted by J.D. Power in January 2018 to understand Chinese customers' perception and desire for new-energy vehicles, has a total of 2,212 respondents across the country.

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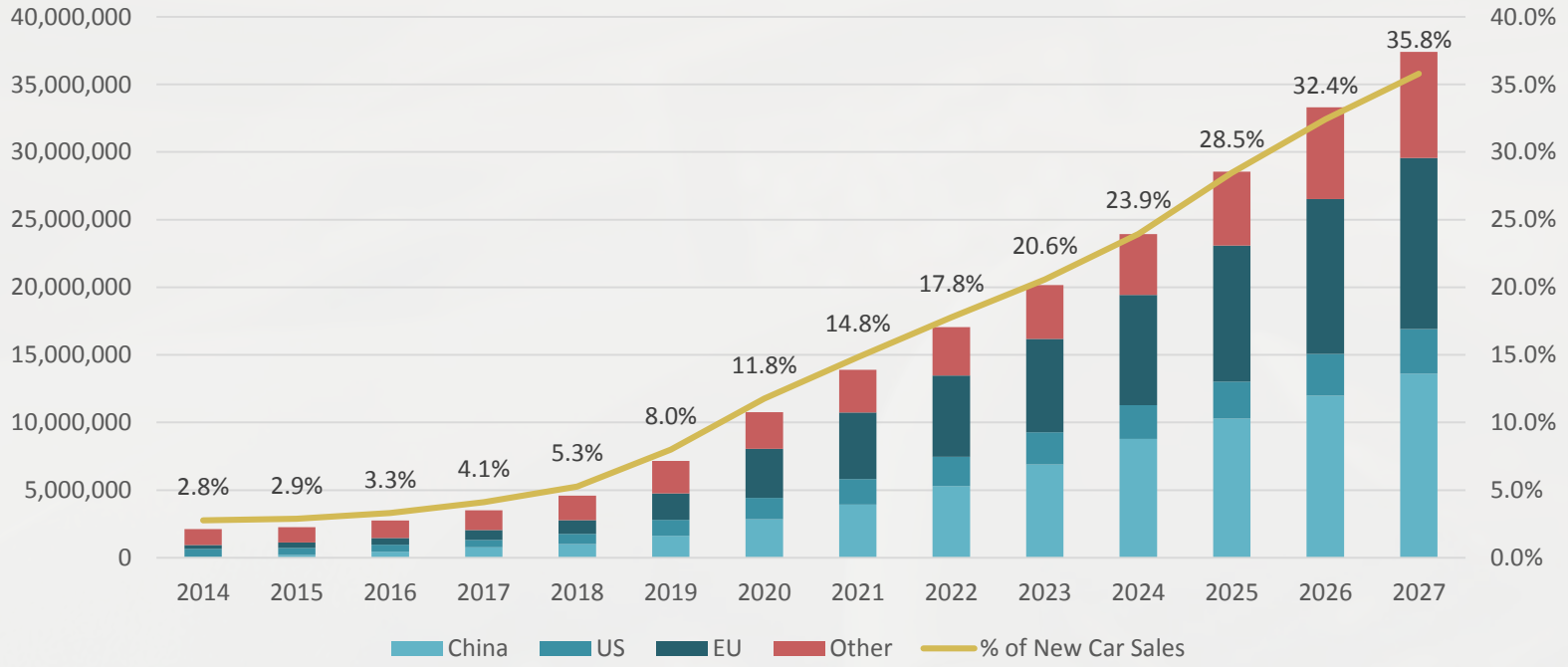
1 Global And Chinese New Energy Vehicles Market

In 2017, only 4.2% of new cars sales are NEVs, but in 2027, NEVs will be account for about 35.8% of new car sales globally.
China and Europe will be the key players, the other regions (including the U.S.) to grow at a much lower rate.

Sales of Hybrid/ EV in China, Europe, US and Other Regions



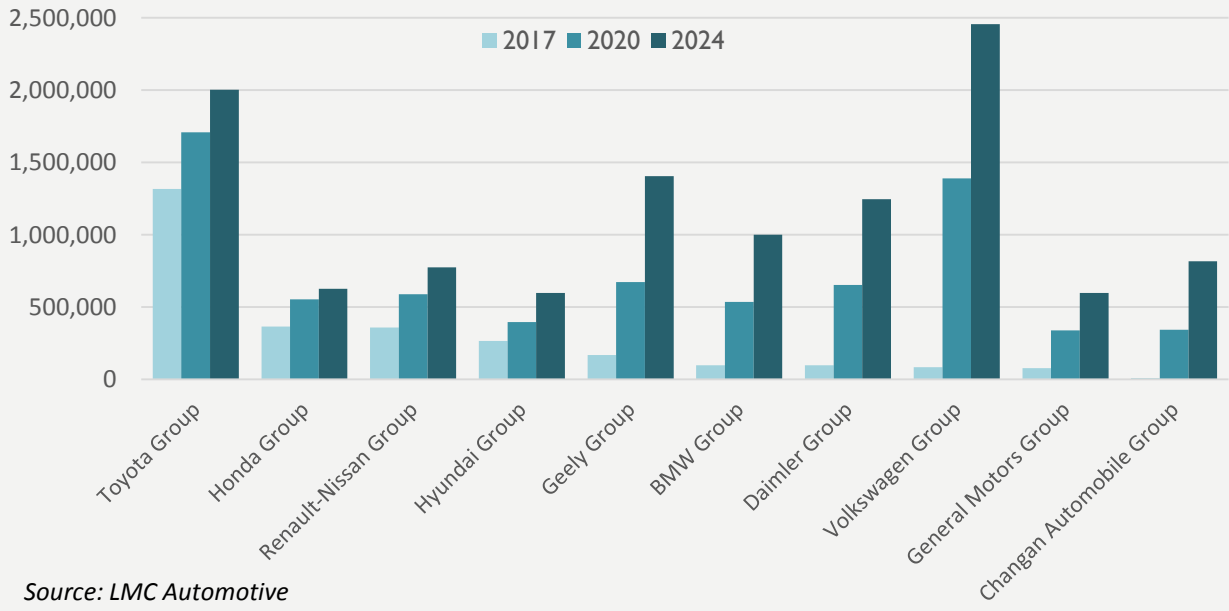
Source: LMC Automotive

OEM	Strategy Overview
BMW Group	15-25% of sales electrified by 2025. Mix of standalone & bespoke BEVs
Daimler	Launch more than 10 purely electrically driven vehicles by 2022, then offer customers at least one electrified alternative in every Mercedes-Benz model series, over 50 in all.
FCA	Half of FCA fleet electrified by 2022
Ford	13 new electrified vehicles globally in next 5 years
Hyundai-Kia	Electrify core models, plus standalone BEVs
JLR	New models all hybrid or EV from 2020
PSA	Electrify core models, no standalone BEVs
R-N-M	New common electrified platforms, 12 hybrid and 8 BEV by 2022
Toyota	Hybrid remains core tech, BEV mass production from 2020
Volvo	All new models hybrid or EV from 2019, no IC-only by circa 2024
VW	At least 1 electrified version of all models by 2030

Source: News report

Almost all of the auto giants are engaged in the NEVs game, showing their ambitions by unveiling aggressive electrification strategies.

Top 10 players by 2024

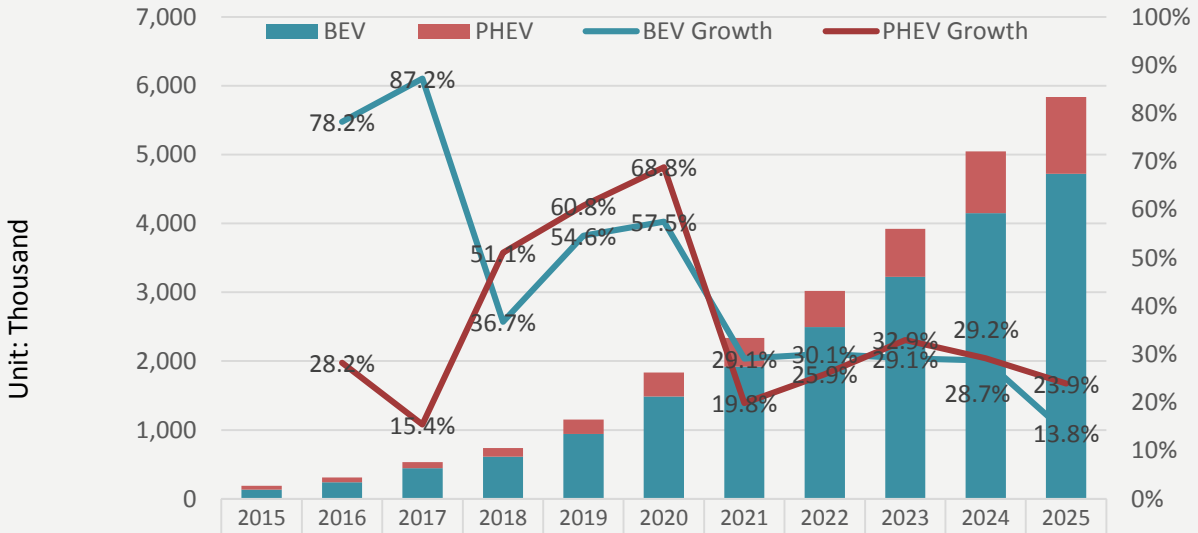


Source: LMC Automotive

Over the past three years, China's new-energy vehicle sales have been growing rapidly. In the next decade, a steady and robust growth, with an annual rate of 40% on average, is expected.

The market share of new-energy passenger vehicles (BEV & PHEV) is less than 2% in 2017, but the introduction of the double integral policy and more limits on car use in tier 2 and tier 3 cities will accelerate the development of new energy vehicle market.

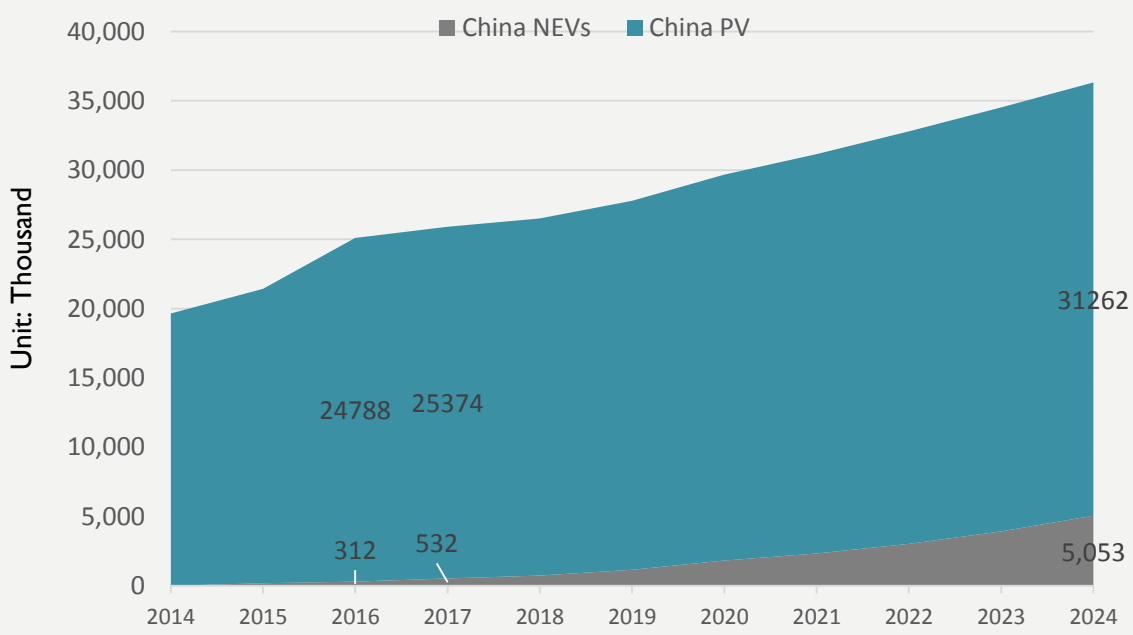
New-energy vehicle sales and China market trend forecast



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
PHEV	57	73	85	128	206	348	416	524	697	900	1115
BEV	134	239	446	611	944	1,487	1,919	2,497	3,224	4,149	4,721
BEV Growth		78.2%	87.2%	36.7%	54.6%	57.5%	29.1%	30.1%	29.1%	28.7%	13.8%
PHEV Growth		28.2%	15.4%	51.1%	60.8%	68.8%	19.8%	25.9%	32.9%	29.2%	23.9%

Source: LMC Automotive

Sales volume in China (passenger vehicles vs. new-energy vehicles)

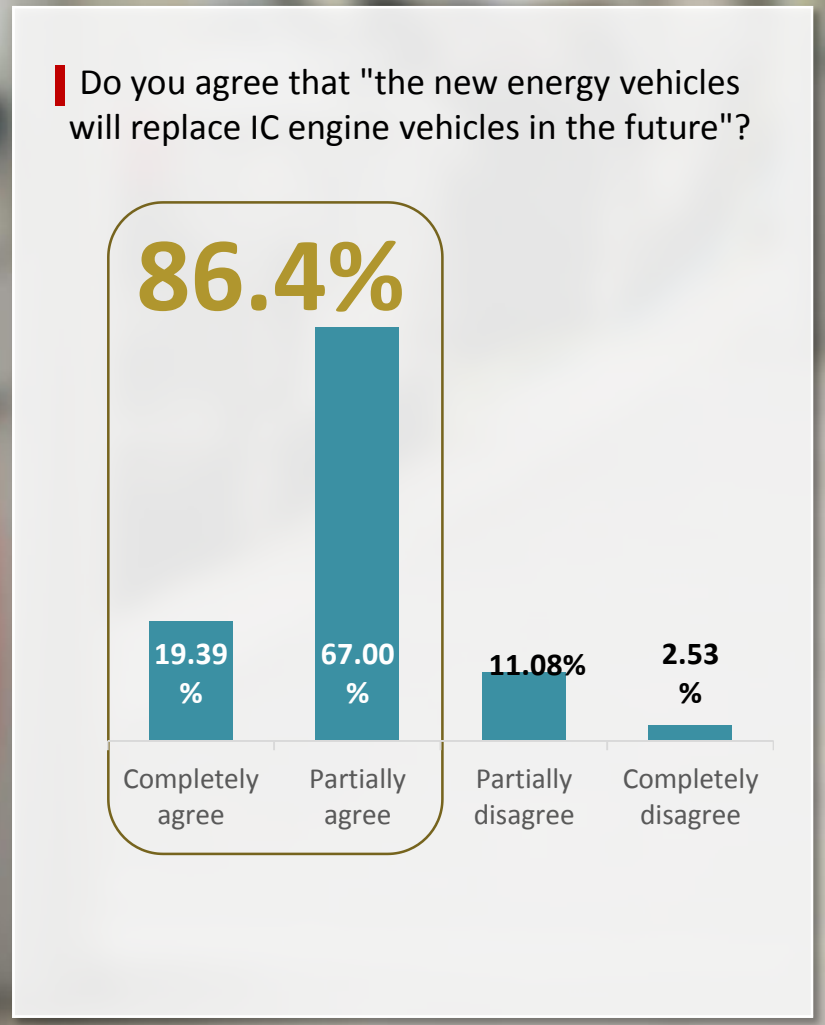


Source: LMC Automotive

2 Purchase Intentions For NEVs By Customers In China

Future Perspective on NEV Technologies

Nearly 90% of Chinese customers agree that new energy vehicles will replace internal combustion engine vehicles in the future.

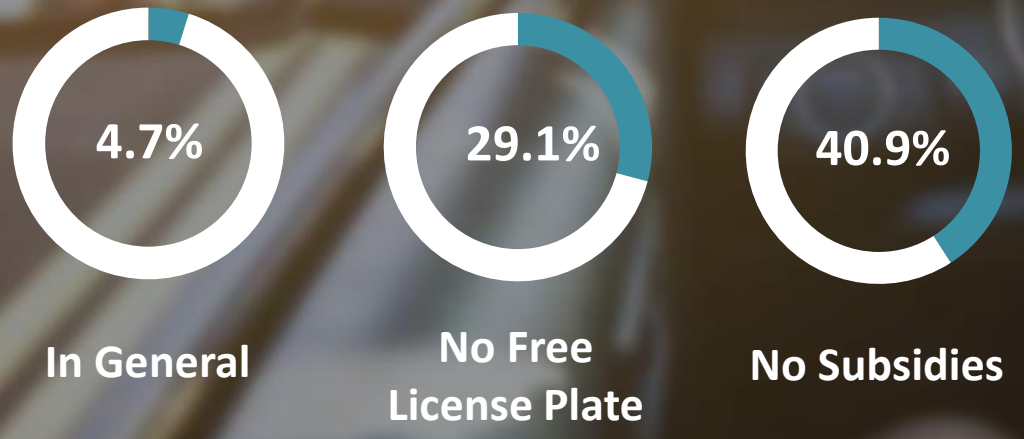


Purchase Intention Drops If No Incentives Are Offered

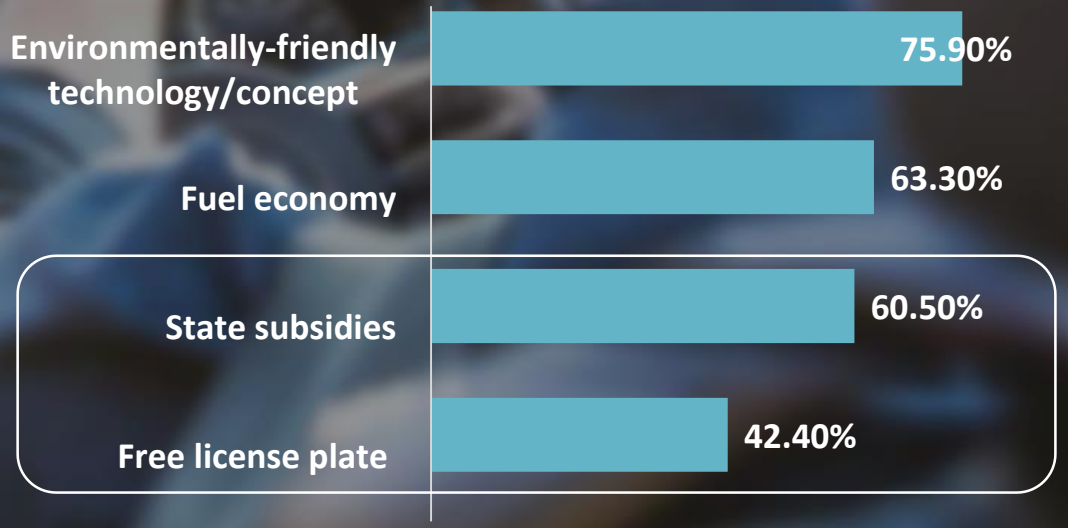
95.2 % of Chinese customers are “very willing” or “slightly willing” to choose a NEV for their next vehicle purchase. However, if there were no subsidies, 29% indicate that they would not select an NEV and 41% would not select an NEV if there were no free license plates.

In other words, the sales of NEVs may drop by 30% or 40% if incentives were no longer offered. There is still a gap between such fervor and real demand.

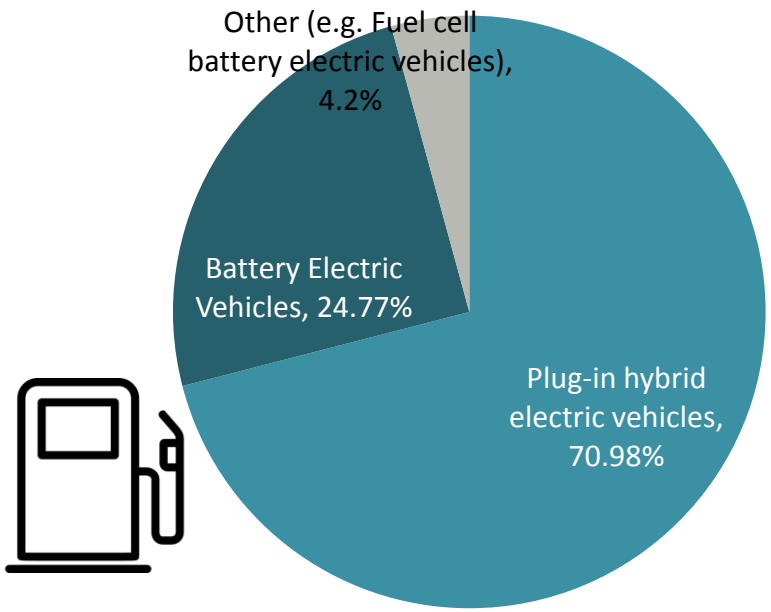
% of Unwilling and Slightly Unwilling to buy NEVs under three premises



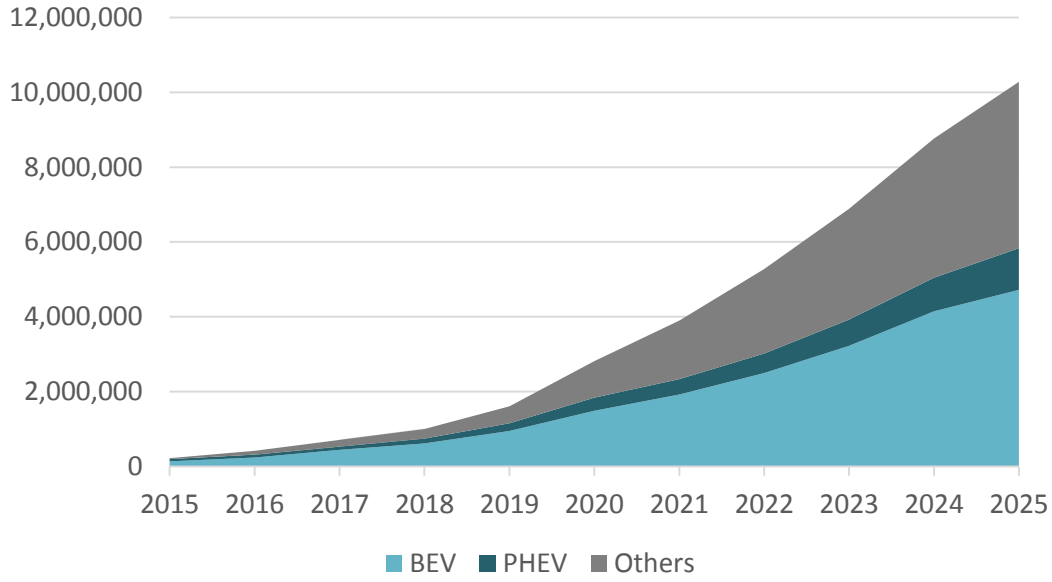
Top four reasons of considering to buy a NEV



Which type of new energy vehicle are you willing to buy?



Sales of PHEV vs. BEV in China



Source: LMC Automotive

Chinese Customers Prefer PHEVs

Although BEVs are expected to be the dominant NEV type in China, the survey shows that customers in China prefer PHEVs. Concern about limited driving range might be the fundamental reason of customer's choice.

Consumers Expect A Shorter Charging Time And A Longer Driving Range

More than three-fourths (77%) of Chinese consumers prefer new-energy vehicles with a driving range on a full charge of more than 200 kilometers, while 38% prefer a range of more than 300 kilometers.

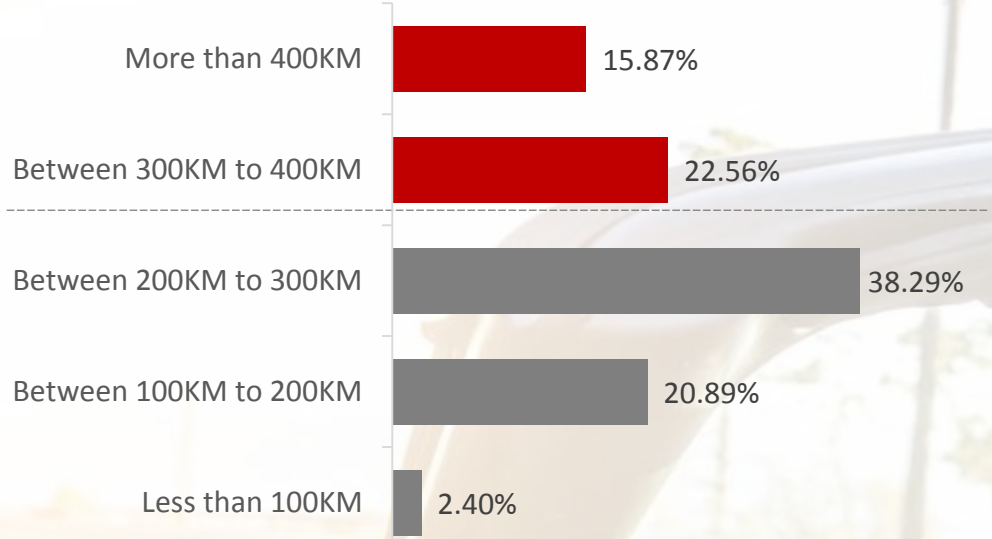
About one-third (30%) indicate they prefer a charging time of less than 6 hours and 12% prefer battery changing, which takes only a few minutes.

High Expectations Drives Technology Advancement

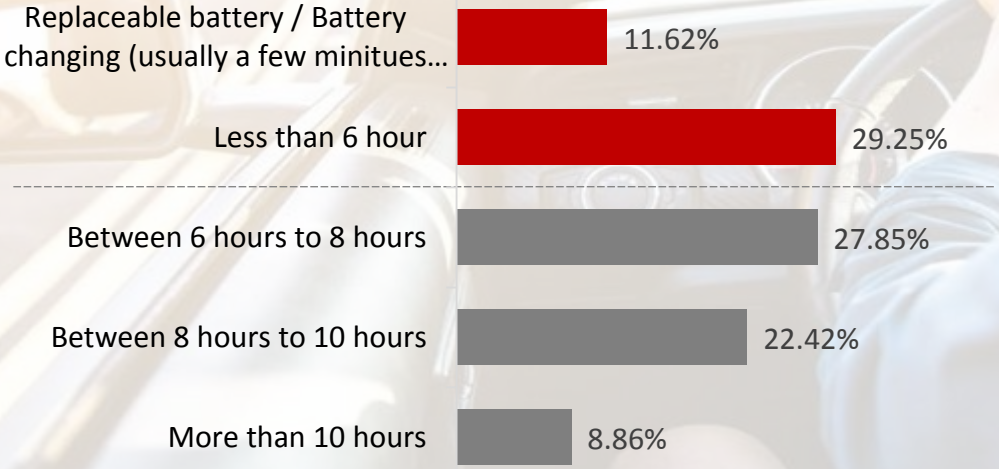
38%
> 300 KM

41%
< 6 HOURS

NEVs with the following driving ranges on one charge, which are you willing to buy?



NEVs with the following charging time ranges, which are you willing to buy?

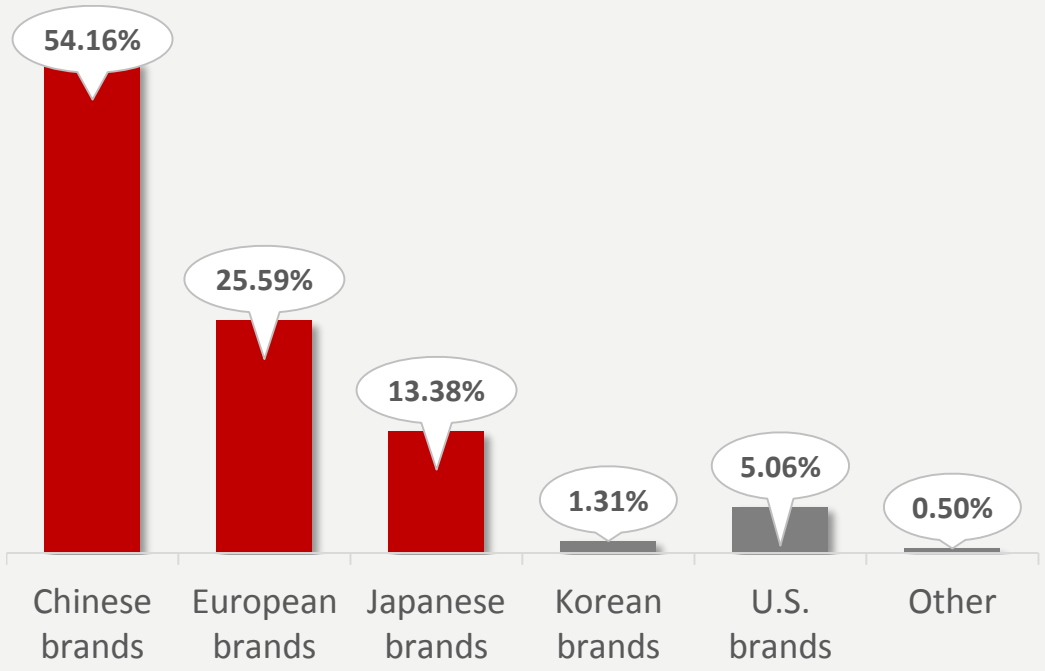


Most Favored Brands By Markets

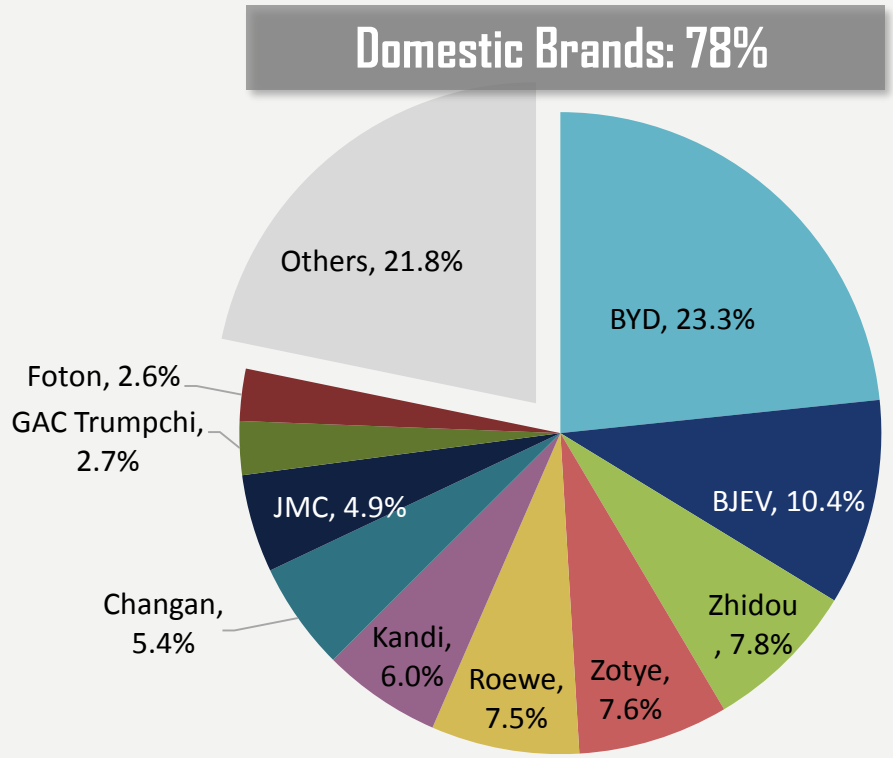
Consumers in China prefer NEVs made by Chinese domestic brands, followed by European brands and Japanese ones.

Chinese enthusiasm for domestic brands is reflected in sales data. In 2017, Chinese brands account for 78% of the NEVs market share.

Brand choice by customers in China



Market share by brands in China - Top 10

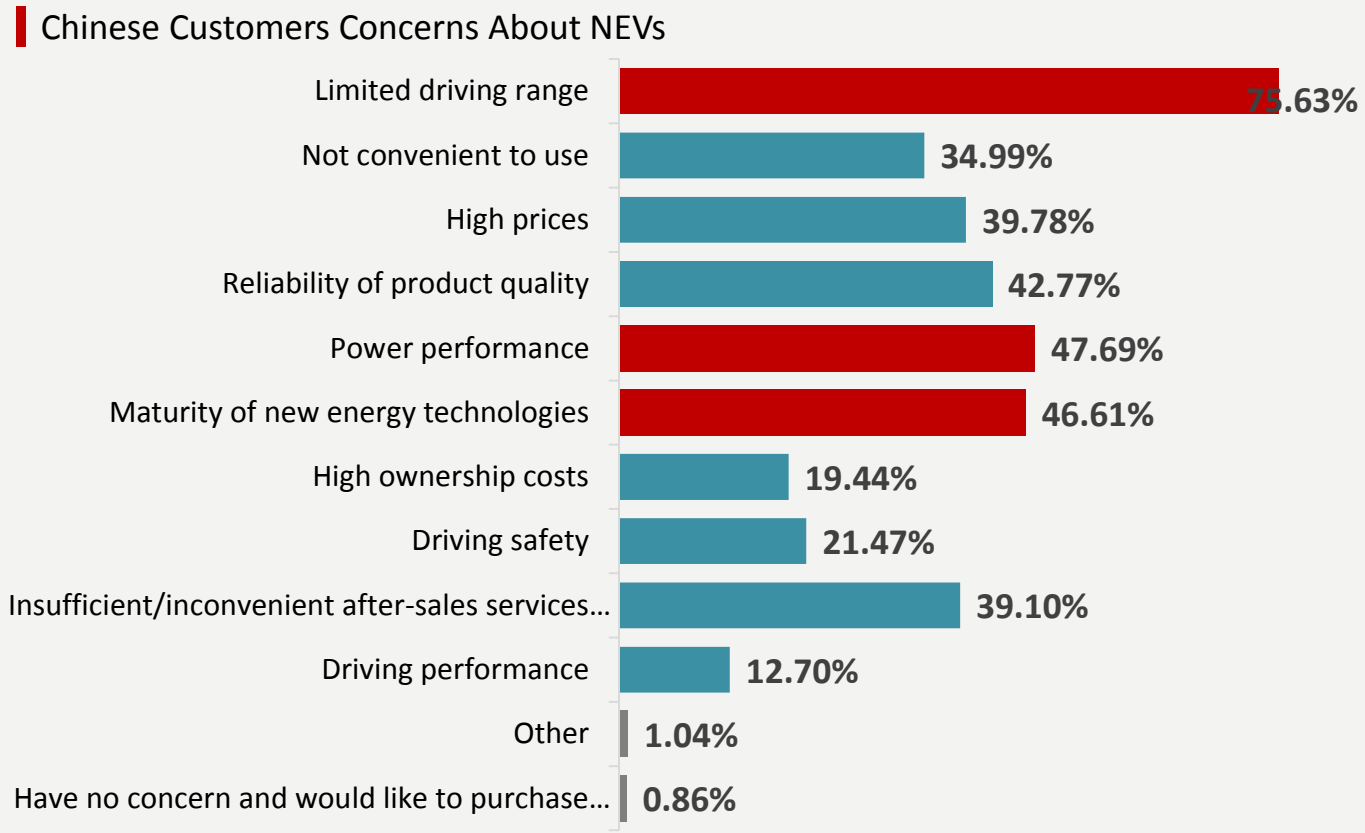


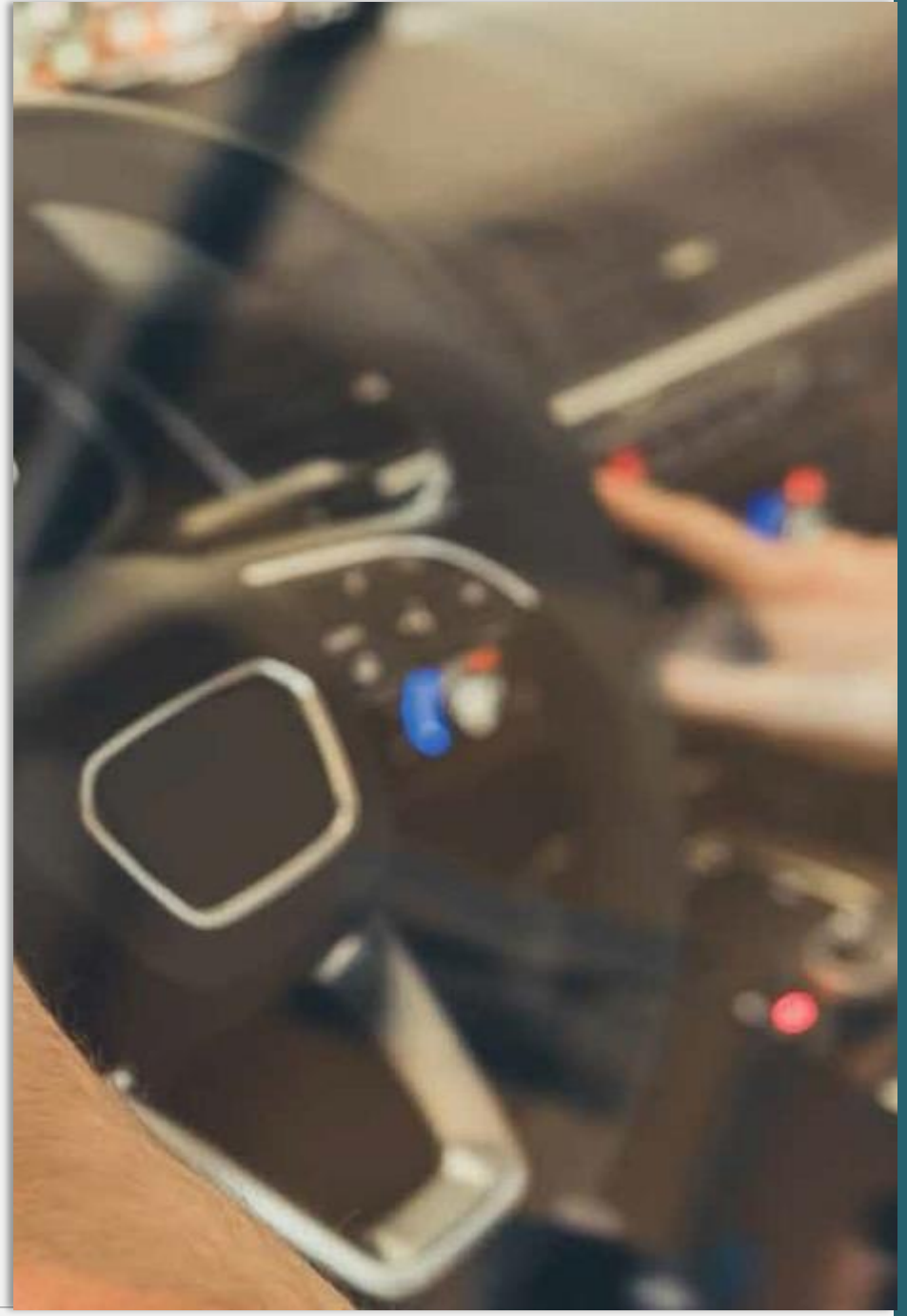
Source: LMC Automotive

3 Major Concerns About NEVs

Three Barriers To The Popularity Of NEVs.

Range anxiety, power performance and the distrust of new energy technologies.

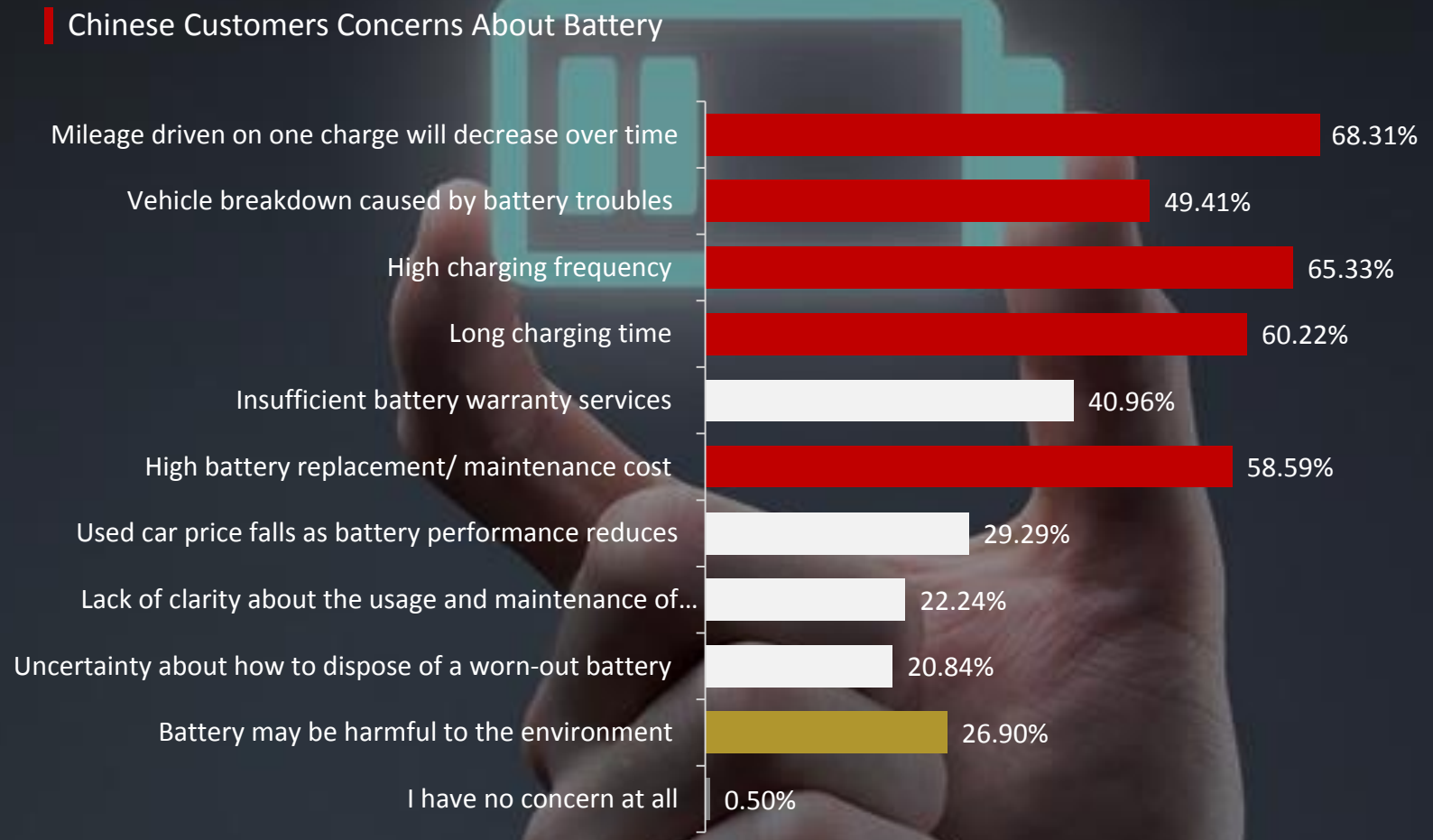




Worry About Battery Life

The majority of consumers are concerned about dependability and high maintenance costs due to the constraints of current battery technology.

How to achieve a longer driving range with a lower battery charging frequency, how to further reduce battery costs and how to address its recycling—all these are pressing challenges that need to be addressed before we can really embrace the era of new-energy vehicles.

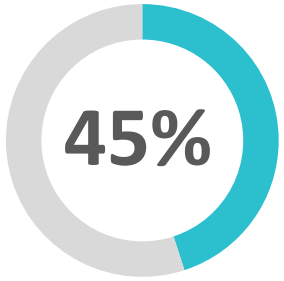


4 New Ways Of Purchasing And Servicing

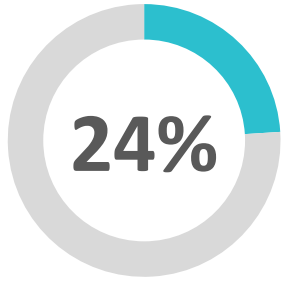
NEVs Need New Thinking In Channel Strategies

41% prefer online car shopping and 30% prefer to visit the branded service stores directly owned by the manufacturers for after-sales service and maintenance.

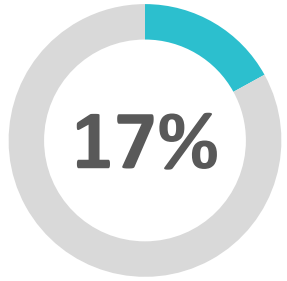
PURCHASE



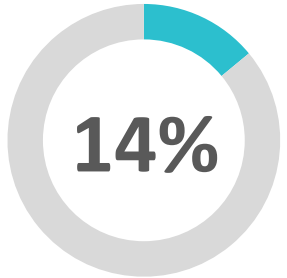
Offline shopping



Online shopping and home delivery

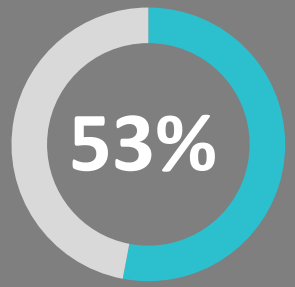


Online shopping and self pick-up

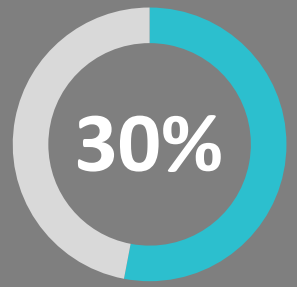


All of above look good to me

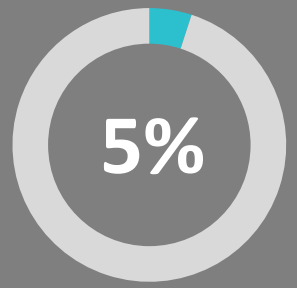
SERVICE AND MAINTENANCE



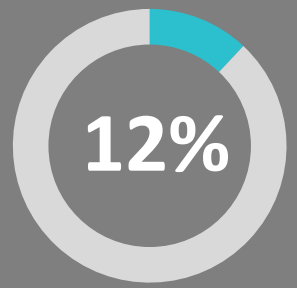
Authorized dealerships



Service stores directly owned by manufacturers



Non-authorized dealerships



All of above look good to me

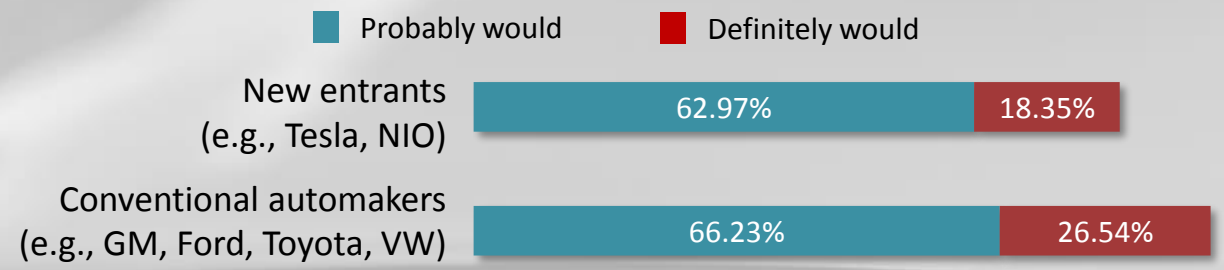
5 Level Of Trust In Automakers

Consumers Trust Conventional Automakers More Than New Market Entrants To Develop NEV Technologies

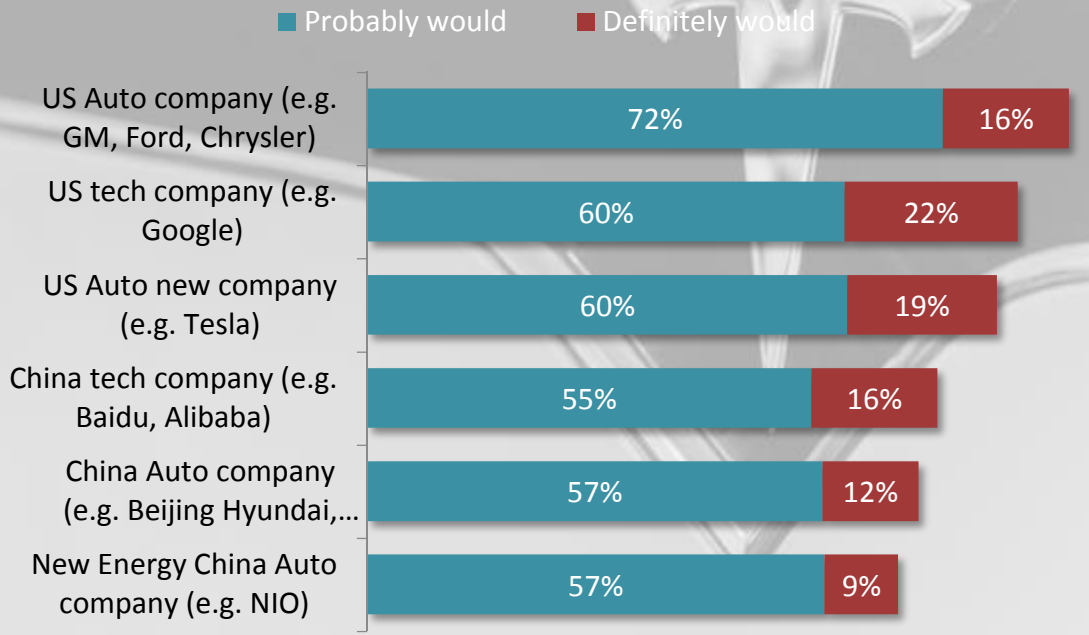
Customers trust conventional automakers more because of their high brand awareness, mature technologies and reliable product quality.

Customers trust new automakers less due to their low brand awareness, untested product quality and less advanced technologies; however, they have more faith in new players when it comes to innovation capabilities.

Level of Trust with the Companies for NEV Technology



Level of Trust with the Companies for Self-driving Automation Technology



Source: Chinese Customers View Towards Autonomous Vehicles, Sep 2017

THANKS !

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