

REMforum 2018

The Push for Electric Mobility in Asia –
Business Opportunities for Swiss SMEs in China



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E-Mobility in China

To start with: Why did you buy a Tesla?



At the very beginning, I wanted to buy a Volvo XC60, but it was very difficult for us to get a licence plate in Shanghai. We tried more than a year, but failed.

It is very easy to get an E-car licence plate, and it's for free (in Shanghai, a normal car plate is not only hard to get, but very expensive, about 90'000 RMB).

One day we tried a Tesla in a 4S shop, and were deeply touched by it. It was very cool and smart, hi-tech and intelligent.

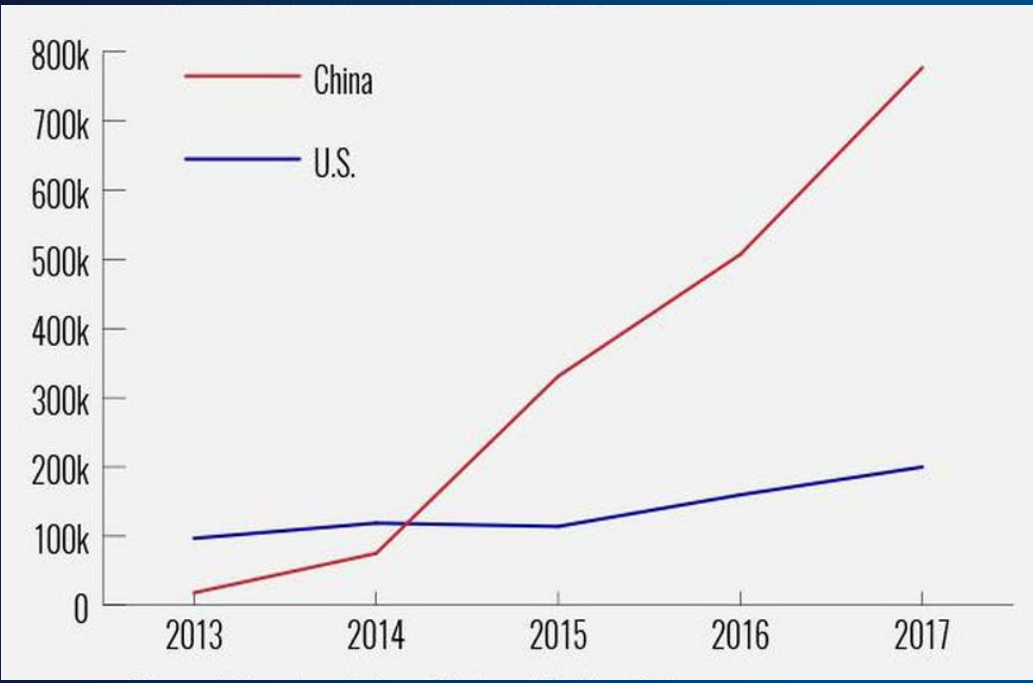
Without hesitation, we booked a Model S after the test drive.



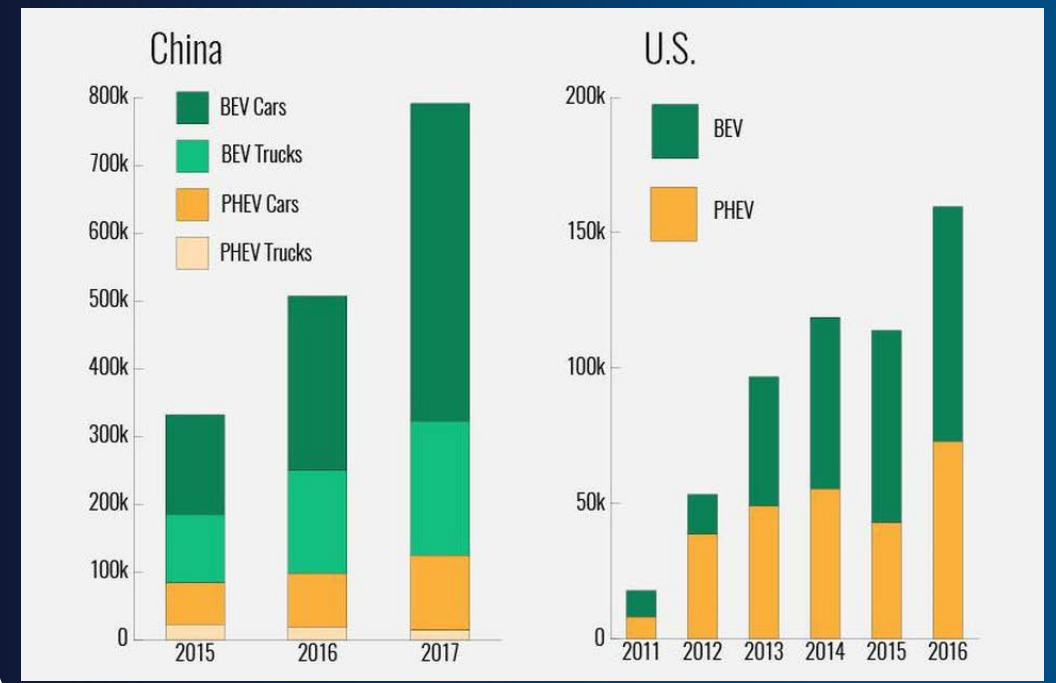
E-Mobility in China

Exponential growth rates of EV sales in China

Electric Vehicle Sales



Battery Electric Vehicle Sales Plug-in Hybrid Electric Vehicle Sales



Source: China Association of Automobile Manufacturers / US Department of Transportation

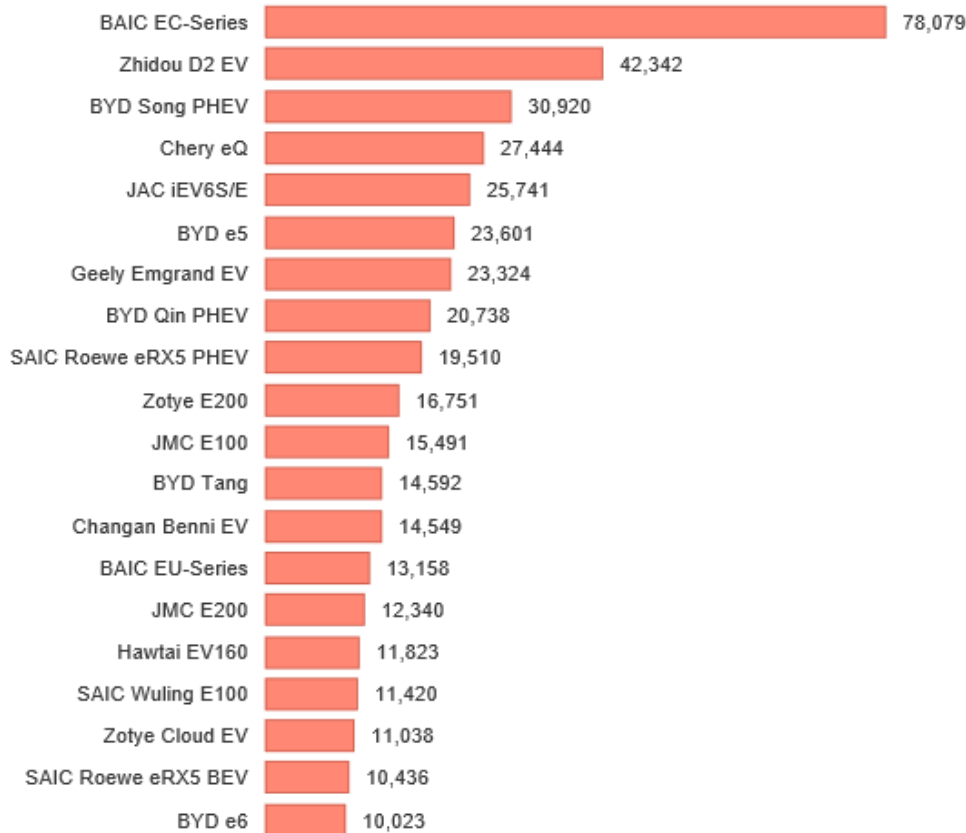
E-Mobility in China

Predominance of small electric vehicles of domestic producers

China Electric Cars Sales (2017)

Sales figures here are not 100% official.

December 2017



* = estimate

Source: [CleanTechnica & EV Obsession](#) - [Get the data](#) - Created with [Datawrapper](#)



BAIC EC-Series

200 km range
160k RMB without subsidy
56k RMB with subsidy



Zhi Dou D2 (Geely)

180 km range
150k RMB without subsidy
50k RMB with subsidy



Chery eQ

200 km range
165k RMB without subsidy
60k RMB with subsidy

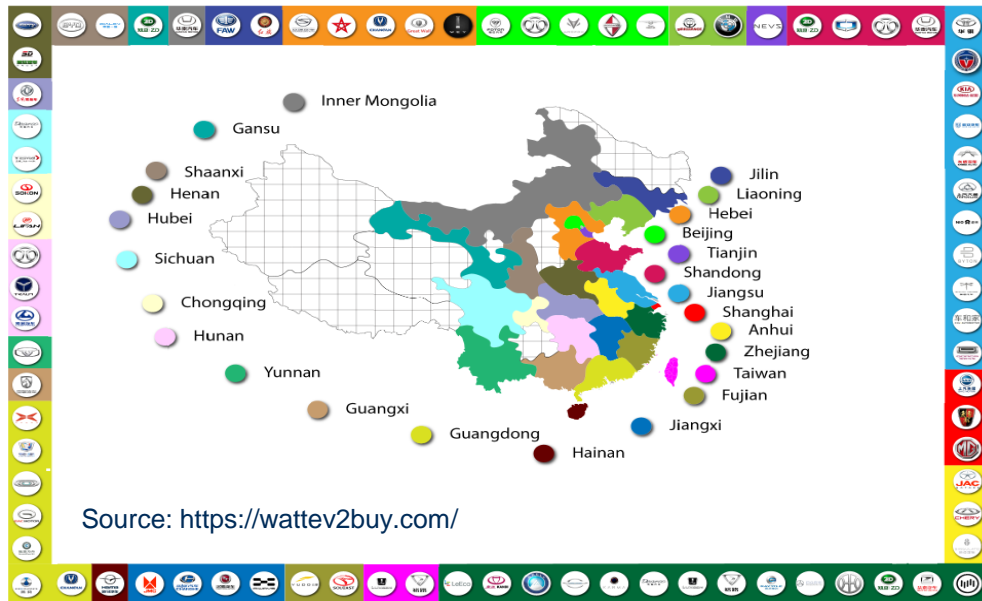


Smart ED

150 km range
25k CHF

E-Mobility in China

Trends and developments in Chinese E-mobility market



Country	BEV/PHEV Market Share (2017)
Norway	40.0%
Netherlands	1.9%
China	1.5% (→ 30% by 2025)
Germany	1.3%
USA	1.0%

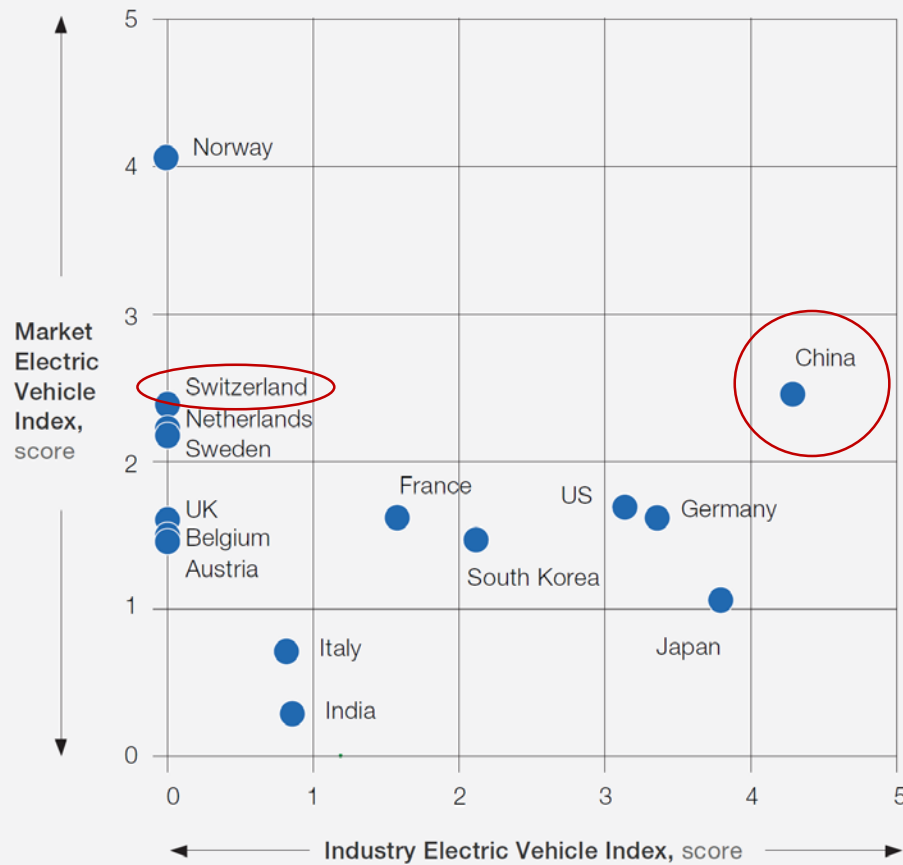
Chinese E-mobility market

- Chinese E-mobility market dominated by local manufacturers
- Most EV sales in T1-cities (Beijing, Shanghai, Hangzhou)
- High growth rates of EV but still small overall market share
- Export of Chinese EV low due to high absorption rate of CN market
- Government subsidies as main driver of Chinese E-mobility market

E-Mobility in China

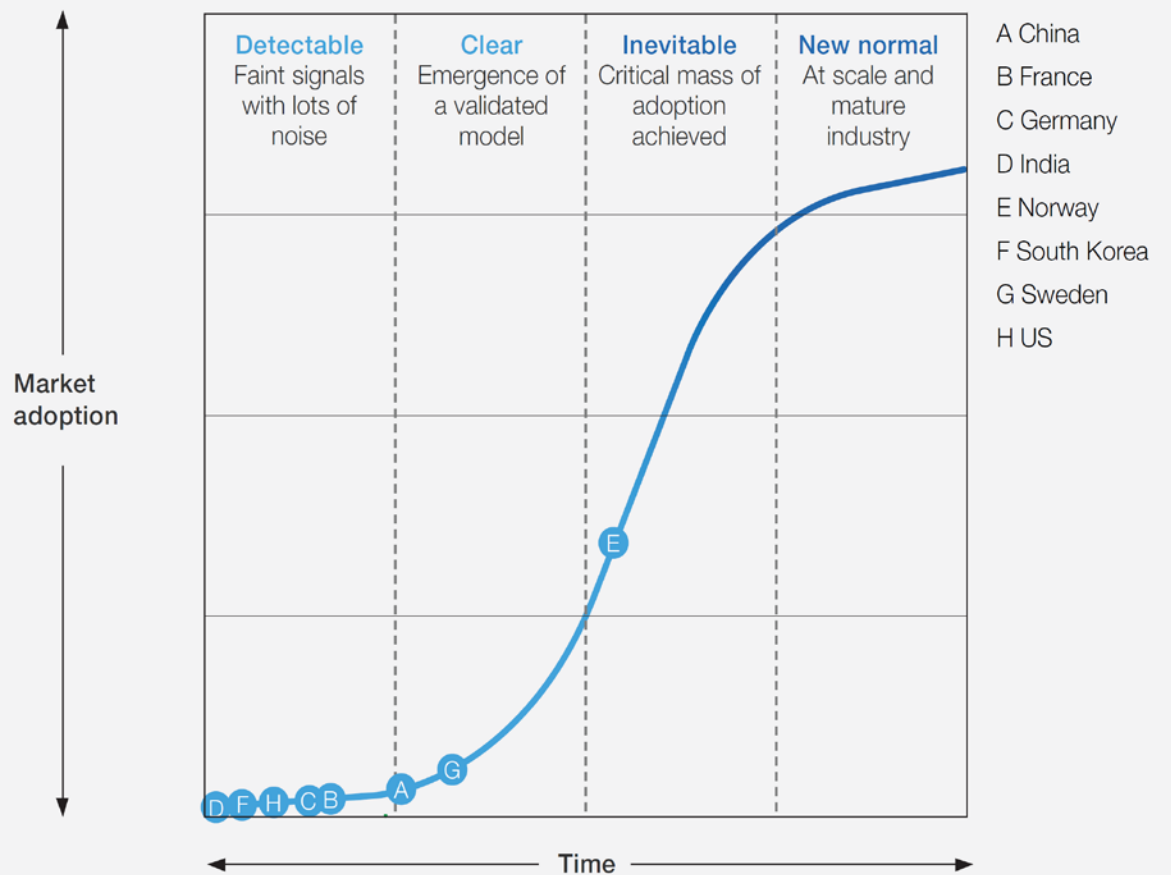
E-mobility with the potential to disrupt the combustion engine car market (?)

Electric Vehicle Index (EVI) development of selected countries, score out of five



Market Electric Vehicle Index,

The 4 stages of a disruptive trend—focus on electric-vehicle market adoption



Source: McKinsey (2018), Global Electric-Vehicle Market

Source: Chris Bradley, Martin Hirt, and Sven Smit, Strategy Beyond the Hockey Stick, McKinsey, 2018

E-Mobility in China

Cost, Convenience, Speed and Scale to make it in the Chinese E-mobility market

Input → **Chinese Corporate Innovation Management for E-Mobility** → **Output**

Chinese Business Ecosystem

Government

Customers

Suppliers

Competitors

Investors

Universities

Normative Level

Vision

Innovation

Values

Strategic Level

Innovation Strategy

Innovation Structure

Innovation Culture

Tactical Level

Horizon 3 Innovation

Horizon 2 Innovation

Horizon 1 Innovation

Operational Level

Capabilities

Finance

R&D

ICT

IPR

Chinese Business Ecosystem

Cost

Convenience

Speed

Scale

E-Mobility Business Model

E-Mobility in China

Three horizons to innovate towards E-mobility

Value



Didi Chuxing

China's Didi targets US\$287 billion car-sharing business with new rental network alliance

The company will join hands with the Renault-Nissan-Mitsubishi alliance and Chinese carmakers Geely Auto and BAIC, among others, to offer electric vehicles for hire

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Tesla / BMW / Google vs. Geely / BAIC / Didi drive innovation on Horizon 2 & 3 today.

Who will make the race?

E-Mobility in China

E-mobility business model: Solving urgent problems in China

Fighting as a crocodile in the Yangtze river



Build Your Dreams



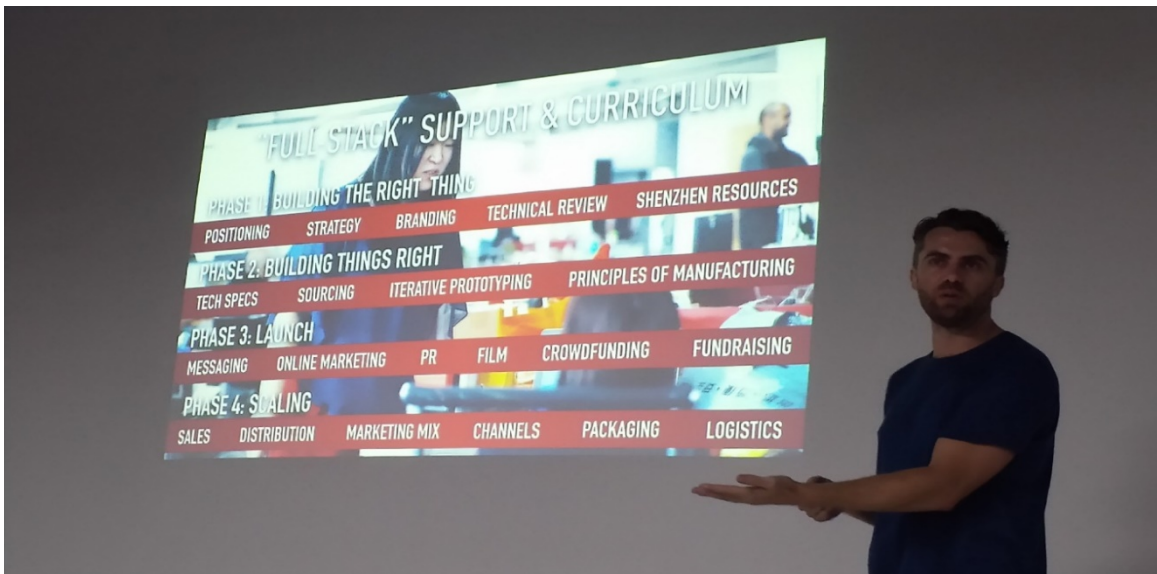
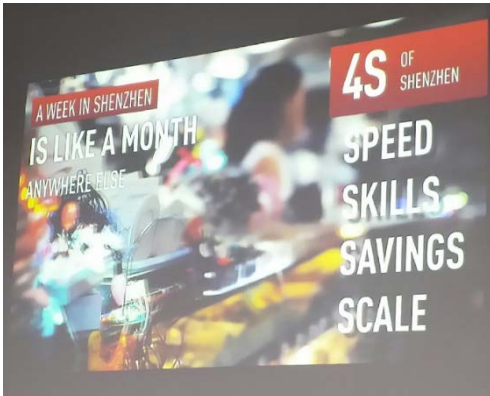
Business-Model Parameters

- Innovation efforts aligned with **opportunities** coming out of the Chinese ecosystem
- Investments in technologies (f.i. BEV) to provide solutions to **urgent problems** of China (f.i. environmental pollution)
- Extension of business into **new areas** based on acquired expertise (f.i. smart city mobility)

E-Mobility in China

E-mobility business model: Beta-testing at low cost and high speed

Fishing for opportunities in the great sea



Business-Model Parameters

- **Extensive manufacturing ecosystem** as a basis for business model innovation
- Development and beta-testing of products and business ideas at **low cost and high speed**
- Efficient **open innovation** and **co-creation** through high availability and connectivity of all relevant stakeholders

E-Mobility in China

E-mobility business model: Partnering with state entrepreneurship

Learning from the best and leaping the frog



«We will move Chinese industries up the **medium-high end of the global value chain**, and foster a number of **world-class advanced manufacturing clusters.**»



19th CCP Congress
18 - 24 October 2017

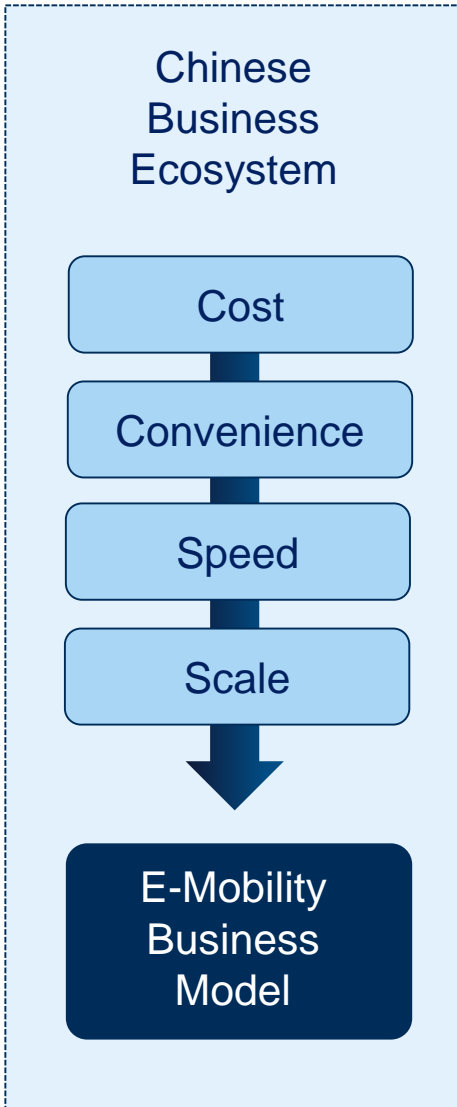
Business-Model Parameters

- China on the move from technology **imitation** → **assimilation** → **innovation**
- Chinese government as **sparring partner** (state entrepreneur) of domestic companies to realize MIC 2025
- **New Energy Car (NEC) cluster** as an example
 - 1 Mio NEC by 2020 (70% market share)
 - 3 Mio NEC by 2025 (80% market share)
 - NEC quota: 10% (2019) / 12% (2020)



E-Mobility in China

What foreign E-mobility companies can learn from/in China



- **Experimentation and rapid iteration**
Identifying and creating E-mobility innovation opportunities through fast trial and error processes.
- **Creative adaptation**
Localizing E-mobility products and business models through focusing on the needs of Chinese customers.
- **Lean Value focus**
Designing simple and cost-effective E-mobility offerings through avoiding of superfluous and unnecessary features.
- **Innovating in China for China and the rest of world**
Establishing research centers in China and capitalizing on China-specific innovations for the rest of the world.
- **Leadership and management development**
Cultivating global leaders through mastering the management challenges of the Chinese business environment.

E-Mobility in China

To conclude with: Will EV eventually replace conventional cars?



I think that E-cars will eventually replace conventional cars in China, but it is still a long way to go.

Currently gas stations are everywhere, but charging stations are not yet.

Chinese E-car producers need to improve their brand position and the functionality of the cars.

We need true E-cars so that China can achieve the goal of environment protection.



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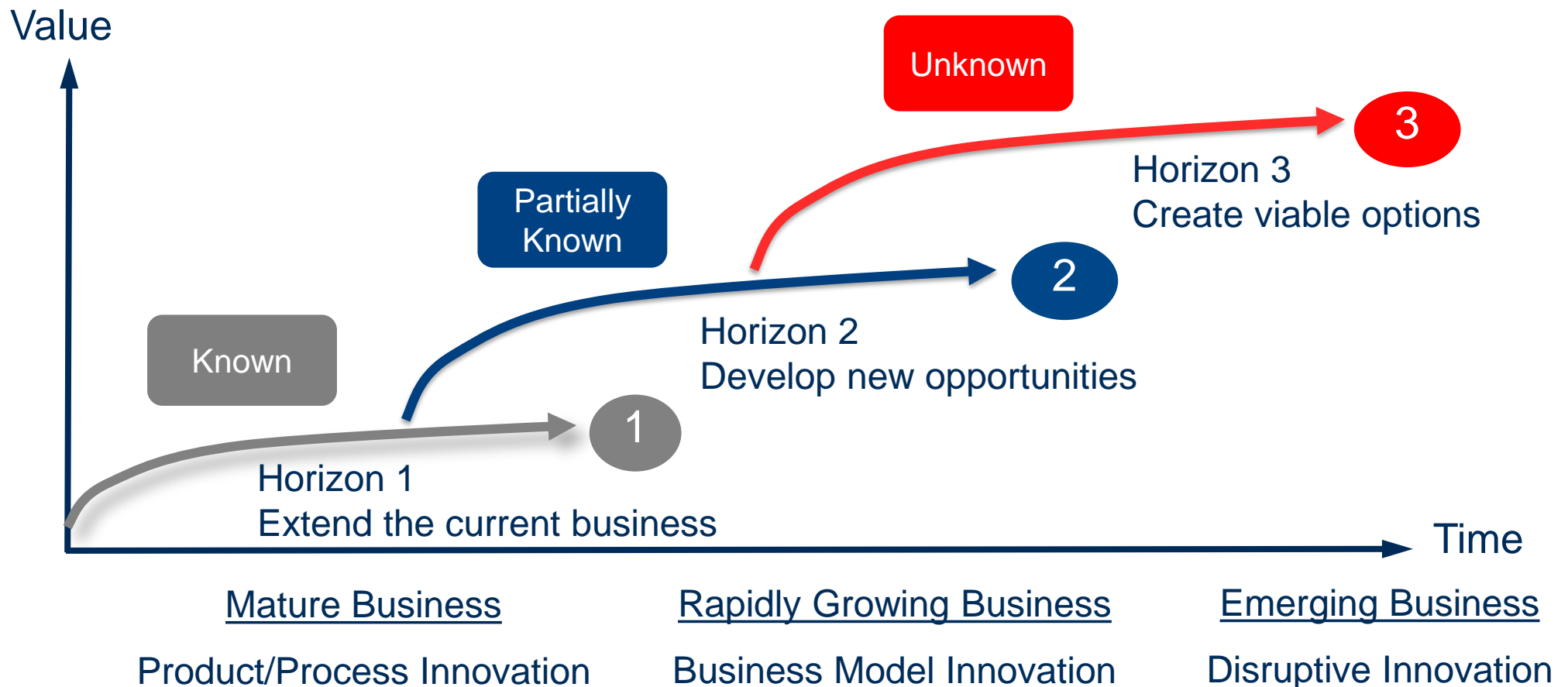
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Appendix

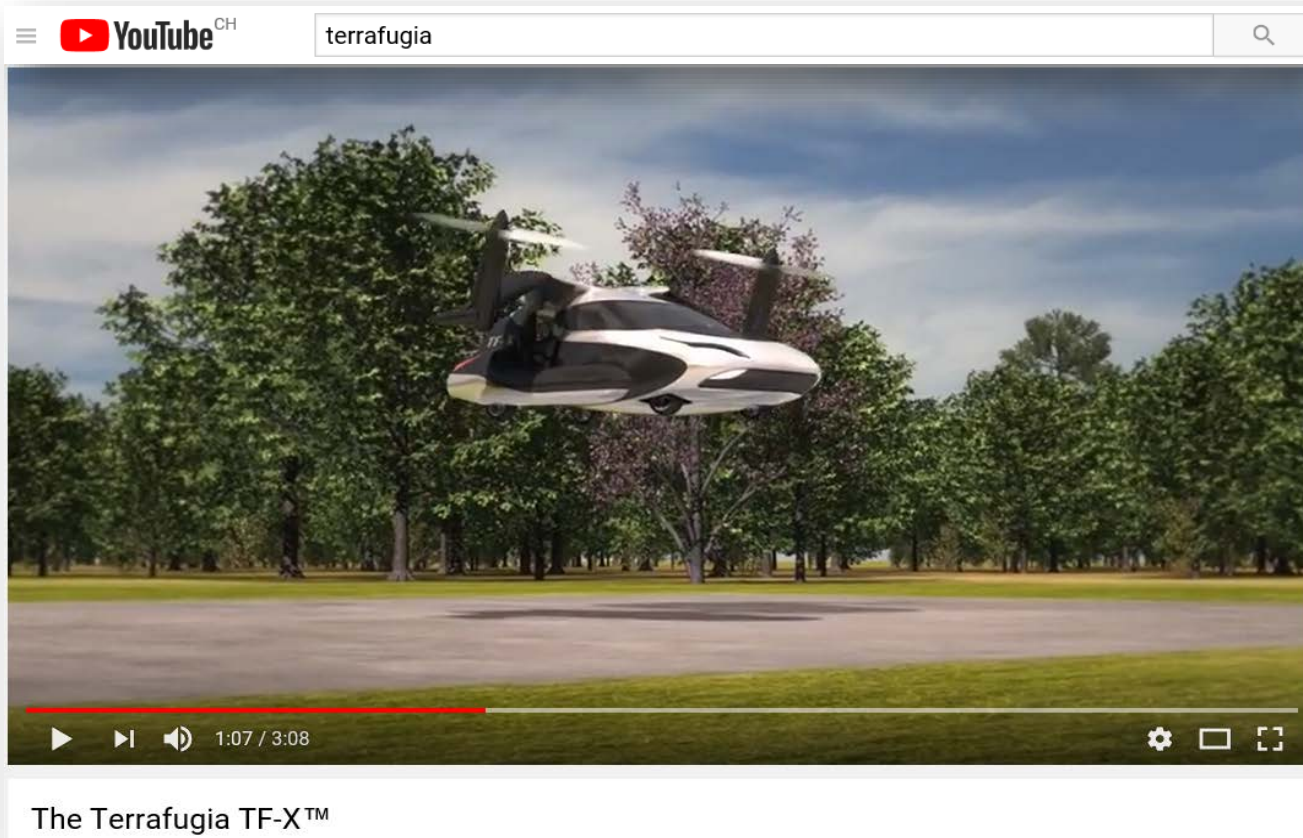
Three horizons to innovate in the car manufacturing business ...

Innovation in E-mobility can come with different horizons depending on the closeness to current business and time



Appendix

... with horizon 4 approaching



<https://www.youtube.com/watch?v=wHJTZ7k0BXU>

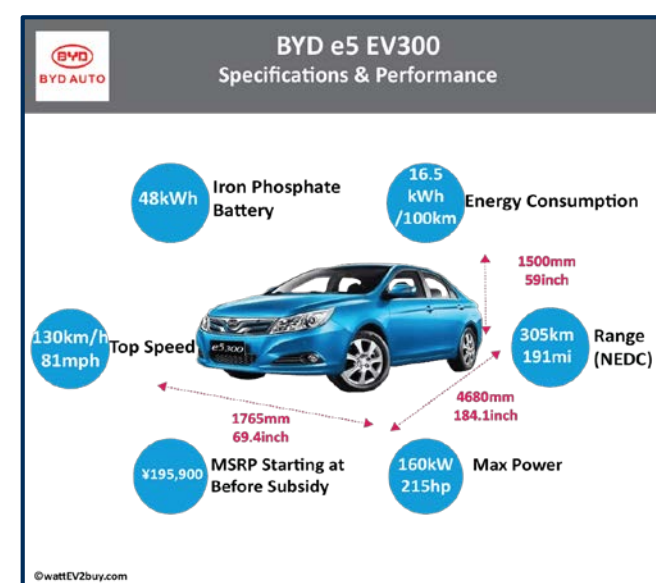
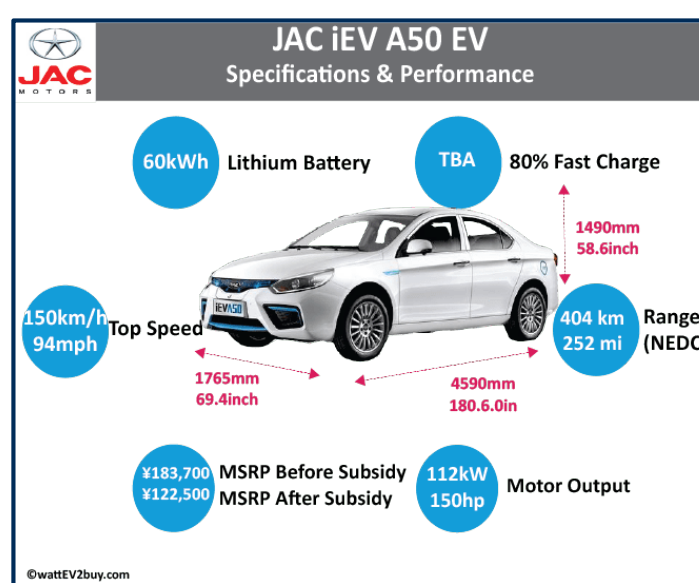
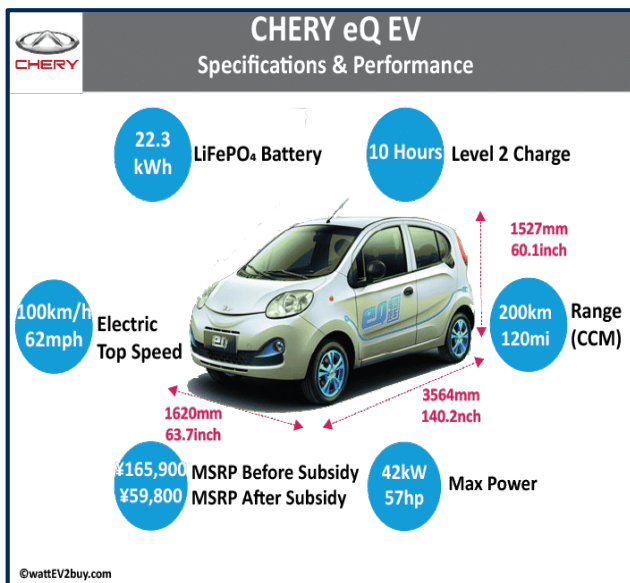
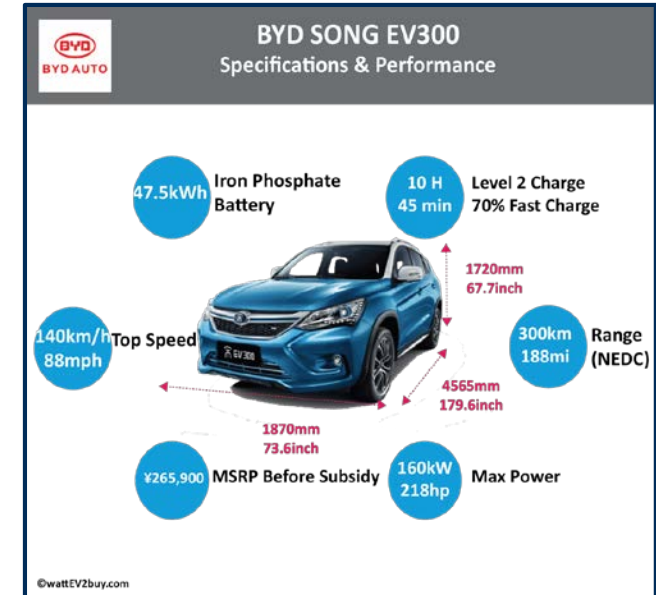
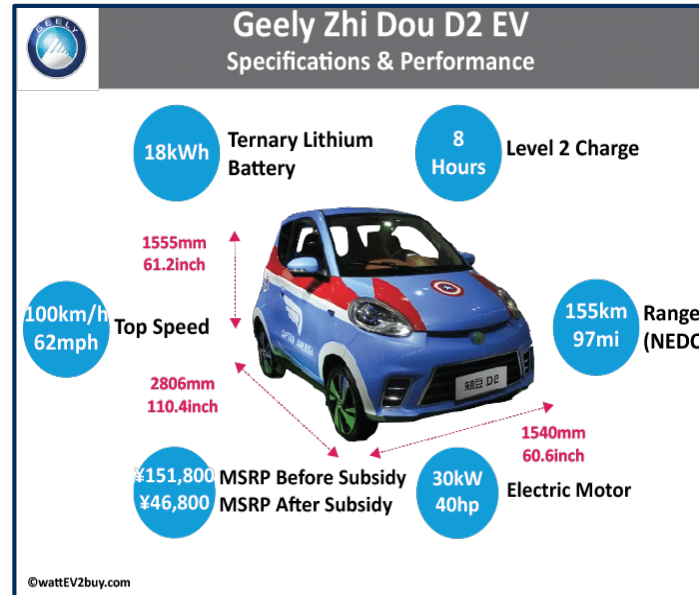
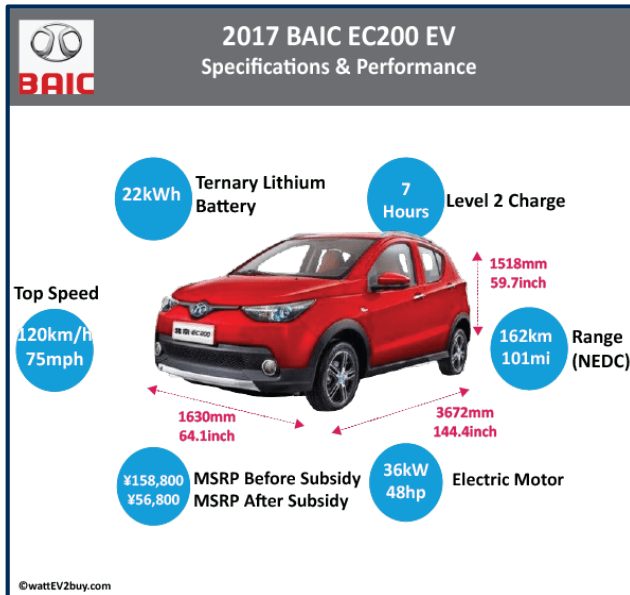


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Appendix

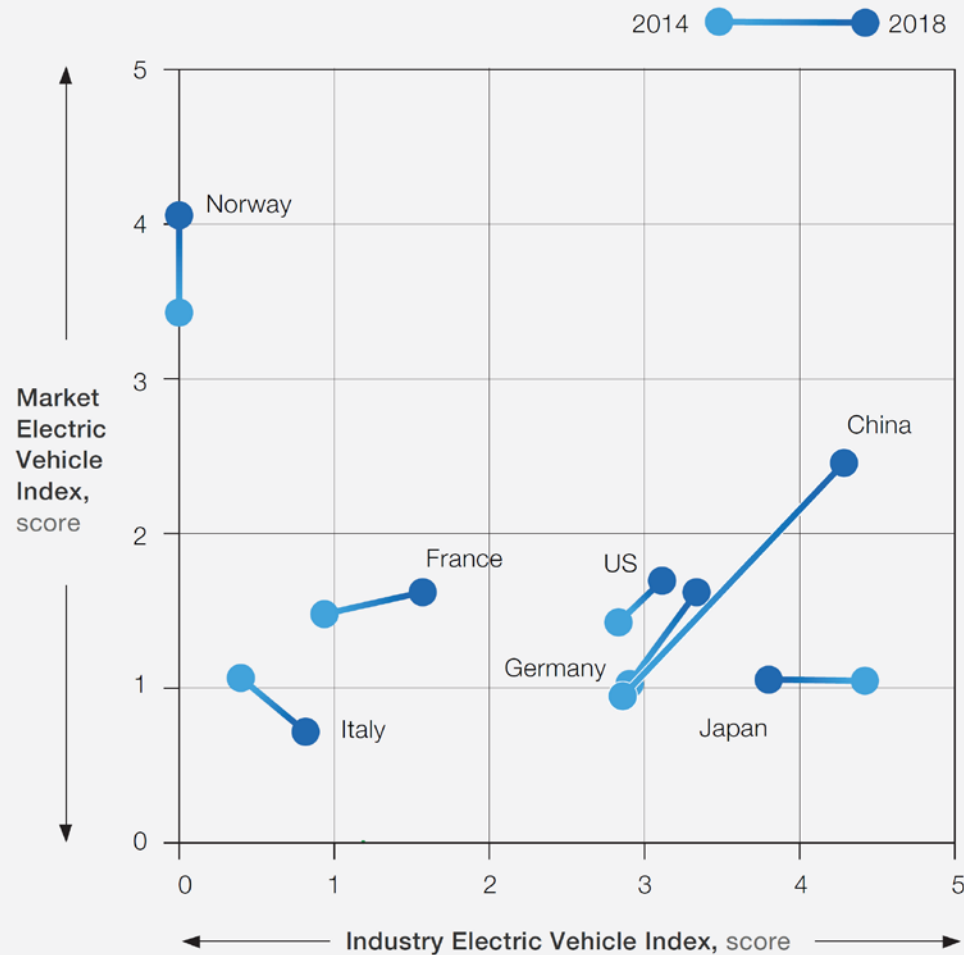
The six most sold EV in China 2017



Appendix

Development of EVI in different countries

Electric Vehicle Index (EVI) development of selected countries, score out of five



Examining the details

China is outperforming other countries on both market side (EV penetration rose from 0.3% to 2.2%, available models number almost 100, intense investment in charging infrastructure) and industry side (higher EV and component share)

France's EV market increased slowly, from 0.7% to 1.7% adoption rate; gains on industry side driven by insourcing of EV components

Germany had equal though slow improvement on both market and industry side as a result of higher sales (from 0.4% to 1.5%) and vehicle production

Italy's market-side performance decreased because of stagnant market; missing industry focus on e-mobility slowed progress on supply side

Japan lost ground on industry side because of falling market share in EV and component production; slight improvement on market side given slow sales development (from 0.6% to 1.1%)

Norway increased EV penetration from 11% to 32% in 4 years, thanks mainly to significant monetary and nonmonetary incentives and larger choice of EV models

The **US** had few positive dynamics on both market and industry side; while EV model availability and market share (from 0.7% to 1.2%) rose slightly, vehicle and component production share decreased

Source: McKinsey (2018), Global Electric-Vehicle Market

Appendix

Government support (subsidies) for electric vehicles

#	City	BEV		PHEV		Pure electric bus			
		e6, Denza		Qin, Tang		K8		K9	
		RMB	US\$	RMB	US\$	RMB	US\$	RMB	US\$
1	Beijing	54	8.6	–	–	–	–	–	–
2	Shanghai	40	6.4	30	4.8	400	64	500	80.1
3	Guangzhou	60	9.6	35	5.6	400	64	500	80.1
4	Shenzhen	60	9.6	35	5.6	400	64	500	80.1
5	Tianjin	54	8.6	31.5	5	–	–	–	–
6	Taiyuan	20	5	–	–	400	64	500	80.1
7	Dalian	43.2	6.9	25.2	4	320	51.2	400	64
8	Ningpo	54	8.6	31.5	5	400	64	500	80.1
9	Wuhu	15	2.4	10	1.6	–	–	–	–
10	Qingdao	60	9.6	35	5.6	80	12.8	100	16
11	Xinxiang	54	8.6	–	–	–	–	–	–
12	Wuhan	54	8.6	35	5.6	400	64	500	80.1
13	Xiangyang	54	8.6	31.5	5	135	21.6	450	72
14	Foshan	54	8.6	31.5	5	400	64	500	80.1
15	Xi'na	54	8.6	31.5	5	400	64	500	80.1
16	Hangzhou	30	4.8	20	3.2	400	64	500	80.1
17	Nanchang	44	7	24	3.8	110	17.6	150	24

Subsidies of local governments to market models of BYD (in thousands) (Masiero et al. 2016)