CHINA

POPULATION 2016
1 378 665 000

URBAN POPULATION %
57%

NUMBER OF PASSENGER CARS IN USE
172 000 000

**NUMBER OF VEHICLE PER HEAD
(DATA IN 2015) PER 1000 HABITANT**
194

**TOTAL PASSENGER ROAD TRAVEL
DISTANCE 2016
(MILLION PASSENGER-KILOMETRES)**
1 196 060

**ROAD INFRASTRUCTURE
INVESTMENT 2015 (€)**
414 199 461 806

**% OF GLOBAL ELECTRIC VEHICLES
SALES IN 2017**
49%

MAZARS

How China is transforming shared mobility?

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China is powering ahead of other countries in developing a sustainable shared mobility market. Jean-François Salzmann, partner, Mazars in China looks at how the market is already showing signs of maturity in comparison to the rest of the world and what the automotive sector can learn from China's approach.

With over 400 million registered customers in more than 400 Chinese cities, Didi Chuxing's smartphone app delivers 25 million rides a day, making it by far the biggest mobile transportation service provider in China, particularly since it bought out Uber's Chinese operations in 2016. But it's not just strength in the Chinese market that has turned Didi from a household name to an aspiring global brand, it's the ability to create a single ecosystem by aggregating big data that is helping to transform this sector of the shared mobility market and potentially defines our core understanding of what shared mobility is from a business perspective.

ONE APP FOR ALL
Using an app to call a taxi is no longer alien to consumers in many countries. However, China is already pulling away from the pack in terms of providers aggregating data to offer one stop transport platforms, whether it's a taxi, bus, chauffeur driven or private car to a wide range of private and business users on an as-needed basis. It's this ability to link up different demands without the need to go to separate service providers that presents both opportunities and challenges to companies looking to develop shared mobility services in China. Despite the current domination by a small number of companies in this space, there will always be room for niche services that cater for a particular market segments or exploit the growth in passenger experience innovation.

But companies that have the technical capabilities alongside expertise in data management and governance going forward will have more of a competitive edge as expected tougher regulations kick in.

INTERMEDIARY OR PROVIDER?
Despite current high market concentration in China, which business model holds the balance of power when it comes to mobility solutions is far from clear cut. There are intermediaries such as Didi who aggregate data to act as a link between providers of cars, bikes, taxis etc. with potential customers. Then there are providers such as Mobike which manufacturers the majority of the distinctive orange bikes on its platform to capitalize on the growth of on-demand bicycle use. While there is the undoubted power of data, there is also control and expertise in the manufacturing process. Both use technology in different ways, but there are service synergies which more recently has seen Didi sign partnership agreements to help OEMs market auto-sharing services and electric vehicles. Equally, Mobike integrated its services into WeChat, which is China's largest social media platform. Either way, forging the right partnerships with a shared vision will continue to be key.
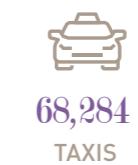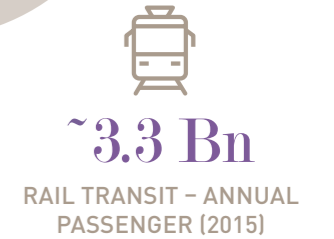
BRAND RECOGNITION

It's counterintuitive to think that regulation can create a brand, but there's potential in China. In terms of the traditional automotive sector, China's focus on its home market has left it behind in the race to create a globally recognized car brand. Instead it has used deep pockets to buy global brands such as Volvo, which is now owned by Chinese OEM Geely. However, with EV development very high on the agenda for the Chinese Government, there is still potential to create a globally recognized Chinese brand in this fledgling sector. Government regulations that ensure a certain percentage of car manufacturing in China are EVs are already filtering through to share mobility platforms where EVs are increasingly the norm.

In addition, industry players are using this regulatory push to exploit expertise in integrating artificial intelligence (AI) and work together to ensure infrastructure such as charge points match demand.

As a densely populated country, China's enthusiasm for shared mobility is undoubtedly fuelled by necessity. But China's involvement in EV and wider sustainable mobility developments so far, means it is not only putting its own stamp on future solutions but is also intent on leading the way.

CASE STUDY:

Beijing

~13.5 Mn
POPULATION (2015)

~5 Mn
CAR OWNERS (2016)

~3.3 Bn
RAIL TRANSIT – ANNUAL PASSENGER (2015)

~5.3 Mn
HOUSEHOLDS (2015)

16,808
BEIJING AREA (SQ. KM5)

¥48,458
AVERAGE ANNUAL DISPOSABLE INCOME PER CAPITA (2015)

4,403,000
PRIVATE CARS

5,350,000
CIVIL AUTOMOBILES

306,000
TRUCKS

23,287
BUSES & TROLLEYS

68,284
TAXIS

5,024
RAIL TRANSIT

CASE ASSUMPTIONS :

PERSONAL OWNERSHIP MODEL

It is assumed that the current (2016) licensed car stock (2,668,161) will grow at a constant growth rate of 1.55% (derived from the historical averages from 2013-16) for the next 14 years, bringing the 2030 total car stock to = 3,309,261

The average distance covered by each car is assumed to = the total traffic flow of cars for 2016/total number of cars, which = 23,213,000,000 km/2,668,161 = 8,700 km/year.

The ICE-EV current ratio is taken to be equivalent to the amount of electric car stock outstanding in 2015-16 (as by International Energy Agency) to total number of cars.

RIDE SHARING

It is assumed that each ride sharing car will carry a total of 4 passengers across.

In each case, it is assumed that 100% ride shared cars and 50% of personal cars will be electric

Each ridesharing vehicle is assumed to cover an average distance of 17,400 km/year.

VEHICLE ECONOMICS

✔ Cost for a Private 4-wheeler Petrol ICE and EV car is assumed to be GBP 0.126/mile and GBP 0.047/mile for each user (translating into km), based upon the current fuel/charging cost undertaken for a Renault Clio (Petrol) and Renault Zoe (Electric) in the UK, as well as the average service and maintenance expenditure for these models. A ratio of 4 users is taken to calculate the cost per user, keeping charging costs equal, for a Shared EV 4-wheeler.

✔ Cost of public transit is taken to be GBP 0.125/km, using the Gross expenditure taken for London buses, along with a 50% reduction in costs due to electrification.

ELECTRIFICATION SCENARIO :
80% EV Penetration Reduces Consumption Cost By 52%

20% EVS — 20% ELECTRIC VEHICLE + 80% INTERNAL COMBUSTION ENGINE

Data Points	Size
Avg Distance Covered - Year	14143 km
Cars in 2015	49,81,000
Cars in 2030	66,05,859
Estimated EVs 2030	13,21,172
Estimated ICEs 2030	52,84,687
Avg Distance Covered by EVs	18,685,332,864 km
Avg Distance Covered by ICEs	74,741,331,458 km
Private 4w EV (RMB/km)	0.17
Private 4w Petrol (RMB/km)	0.45

TOTAL RUNNING COST: RMB 36.7 BN

50% EVS — 50% ELECTRIC VEHICLE + 50% INTERNAL COMBUSTION ENGINE

Data Points	Size
Avg Distance Covered - Year	14143 km
Cars in 2015	49,81,000
Cars in 2030	66,05,859
Estimated EVs 2030	33,02,930
Estimated ICEs 2030	33,02,930
Avg Distance Covered by EVs	46,713,332,161 km
Avg Distance Covered by ICEs	46,713,332,161 km
Private 4w EV (RMB/km)	0.17
Private 4w Petrol (RMB/km)	0.45

TOTAL RUNNING COST: RMB 28.9 BN

80% EVS — 80% ELECTRIC VEHICLE + 20% INTERNAL COMBUSTION ENGINE

Data Points	Size
Avg Distance Covered - Year	14143 km
Cars in 2015	49,81,000
Cars in 2030	66,05,859
Estimated EVs 2030	52,84,687
Estimated ICEs 2030	13,21,172
Avg Distance Covered by EVs	74,741,331,458 km
Avg Distance Covered by ICEs	18,685,332,864 km
Private 4w EV (RMB/km)	0.17
Private 4w Petrol (RMB/km)	0.45

TOTAL RUNNING COST: RMB 21.1 BN

Source: Mazars' Global Knowledge Center Analysis; BeijingStatistical Yearbook; Press Articles, MDPI

RIDE SHARING SCENARIO :
Greater Ride Sharing Cuts Down on Number of Vehicles and Cost

20% RIDE SHARING — 20% RIDE SHARING + 80% PERSONAL CARS (WITH 50% EV)

Data Points	Size
Avg Distance – YR (Ride Sharing)	28,286 km
Avg Distance – YR (Personal Car)	14,143 km
Ride Sharing (2030)	330,293
Personal Ownership (2030)	5,284,687
Estimated EVs 2030	2,972,637
Estimated ICEs (Petrol) 2030	2,642,344
Avg Distance Covered by EVs	46,713,332,161 km
Avg Distance Covered by ICEs	37,370,665,729 km
Shared 4w EV (RMB/km)	0.22
Private 4w EV (RMB/km)	0.17
Private 4w Petrol (RMB/km)	0.45

TOTAL RUNNING COST: RMB 25.2 BN

50% RIDE SHARING — 50% RIDE SHARING + 50% PERSONAL CARS (WITH 50% EV)

Data Points	Size
Avg Distance – YR (Ride Sharing)	28,286 km
Avg Distance – YR (Personal Car)	14,143 km
Ride Sharing (2030)	825,732
Personal Ownership (2030)	3,302,930
Estimated EVs 2030	2,477,197
Estimated ICEs (Petrol) 2030	1,651,465
Avg Distance Covered by EVs	46,713,332,161 km
Avg Distance Covered by ICEs	23,356,666,081 km
Shared 4w EV (GBP/km)	0.22
Private 4w EV (GBP/km)	0.17
Private 4w Petrol (GBP/km)	0.45

TOTAL RUNNING COST: RMB 19.7 BN

80% RIDE SHARING — 80% RIDE SHARING + 20% PERSONAL CARS (WITH 50% EV)

Data Points	Size
Avg Distance – YR (Ride Sharing)	28,286 km
Avg Distance – YR (Personal Car)	14,143 km
Ride Sharing (2030)	1,321,172
Personal Ownership (2030)	1,321,172
Estimated EVs 2030	1,981,758
Estimated ICEs (Petrol) 2030	660,586
Avg Distance Covered by EVs	46,713,332,161 km
Avg Distance Covered by ICEs	9,342,666,432 km
Shared 4w EV (GBP/km)	0.22
Private 4w EV (GBP/km)	0.17
Private 4w Petrol (GBP/km)	0.45

TOTAL RUNNING COST: RMB 14.2 BN

Source: Mazars' Global Knowledge Center Analysis; BeijingStatistical Yearbook; Press Articles, MDPI