China’s Mobility Industry Picks Up Speed

What are the big consequences of e-hailing, bike sharing and other mobility options?

By Raymond Tsang, Pierre-Henri Boutot and Dorothy Cai
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China has quickly emerged as the world’s largest mobility market. Innovations in automotive, technology and e-commerce are rapidly converging in new, unexpected ways. Chinese consumers, who lead most other countries in digital adoption, are willing to try new options that are becoming available at a record pace and are upending the definition of mobility. Consider that China’s market for e-hailing—ordering car rides electronically from a mobile phone—now totals about $23 billion, more than the rest of the world combined (see Figure 1). This mobility market is expected to maintain its robust growth, fueled by $50 billion in investments from 2014 to 2017 (see Figure 2).

We wanted to understand the dimensions of this huge shift and its potential implications across industries, so we surveyed nearly 2,000 Chinese consumers in Tier-1, Tier-2 and Tier-3 cities (see the sidebar “How big and how fast?”). We learned that 60% of respondents increased their mobility frequency in the past two years, with new mobility services accounting for a significant part of that increase (see Figure 3). Chinese consumers adopt new practices as soon as they are introduced and bring them into the mainstream. While bike sharing, the most popular solution, was used by 73% of respondents, e-hailing was second—62% of respondents used this growing alternative. As an indication of how prevalent these two mobility solutions have become, compare how widely they are used in China vs. Germany and the US. We conducted similar studies of consumers in those countries. In Germany, only 29% had used e-hailing and 9% had tried bike sharing. In the US, 23% had relied on e-hailing and 8% had used bike sharing. However, Chinese consumers are less likely than their German or US counterparts to use such traditional mobility solutions as car rentals (see Figure 4).

### Mobility’s upward trajectory

By our estimates, bike sharing has grown more than five-fold and e-hailing fourfold since their introduction (see Figure 5). Part of that explosive growth is due to the popularity of mobile payments. Chinese consumers began paying with mobile phones in earnest in 2014. Today the value of mobile payments made in China is 60 times more than in the US. The other force contributing to the rise in mobility solutions: the major traffic delays on roads and highways in China’s top-tier cities. In fact, when we asked consumers to name their top travel pain points, time spent on the road topped the list (see Figure 6). With technology integration, government support and the emergence of new options such as B2C car sharing, China’s mobility industry is likely to continue on its upward trajectory.

Given these newly available transportation options, the formidable traffic congestion and the financial costs of car ownership, more Chinese consumers are turning their backs on buying cars (see the sidebar “A disaffection with car ownership?”) Cars have long been equated with social status in China, yet less than 50% of our survey participants feel that owning a car improves one’s social status. That is smaller than the portion of consumers who felt cars improved social status in a similar study Bain conducted in 2014. Nearly half the people in our recent survey indicated that owning a car has decreased as a status symbol in the past five years (see Figure 7).

Both car owners and potential car owners agree on the specific factors that will persuade them to either give up their car or make them avoid buying one in the future. Heavy traffic tops the list for both groups (see Figure 8). In almost
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Figure 1

China has become the largest and fastest-growing mobility market

2016 global e-hailing gross merchandise value ($B)

China

US

N & S America (excluding US)

Western Europe

SEA

India

Other

Sources: Analyst reports; 2017 China Internet Mobility Market Report by Analysys; expert interviews; Bain analysis

Figure 2

The new mobility market is expected to show robust growth due to increased investments

Investment by mobility concept ($B)

2014

2015

2016

2017

Accumulative investment $ (2014-17)

Other

Car rental

Mobility infrastructure

B2C instant delivery

B2C car sharing

AV and car connectivity

Bike sharing

E-hailing

Note: Based on publicly disclosed deals
Sources: Analyst reports; ITJuzi database; Bain analysis
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New mobility services account for a significant increase in individual travel

**Figure 3**

Q: With emerging new mobility concepts in the past two years, how did your mobility frequency change?

- **Percentage of respondents**

  - **Total**
  - **Significantly increased**
  - **Slightly increased**
  - **No changes, with same mobility needs**
  - **No changes, but can make better use of my time**
  - **Slightly decreased**
  - **Significantly decreased**

  **Main reason for increase:** New mobility solutions improved convenience

Source: Bain China New Mobility 2.0 Survey, 2017 (n=1,950)

**Figure 4**

Chinese consumers are adopting new practices and bringing them into the mainstream

**Q: Have you used the mobility solutions that you are familiar with?**

- **Percentage of respondents**

  - **100%**

<table>
<thead>
<tr>
<th>Service</th>
<th>China 2017</th>
<th>Germany 2017</th>
<th>US 2017</th>
<th>Usage exposure, with big difference between China, Germany and US</th>
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<tbody>
<tr>
<td>Bike sharing</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-hailing*</td>
<td>62</td>
<td>29</td>
<td>46</td>
<td></td>
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<tr>
<td>E-hailed Taxi</td>
<td>56</td>
<td>23</td>
<td>30</td>
<td></td>
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<tr>
<td>Car rental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2C car sharing</td>
<td>25</td>
<td>16</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>C2C car sharing</td>
<td>13</td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Electric bike sharing</td>
<td>13</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Bus sharing</td>
<td></td>
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</tr>
</tbody>
</table>

*E-hailing for China includes e-hailed hitching and e-hailed express/premier; for Germany and US it includes ride sharing from established locations or arranged via computers or smartphones

Sources: Bain China New Mobility 2.0 Study, 2017 (n=1,950); Bain Germany New Mobility 2.0 Study, 2017 (n=1,708, and n=2,607 in US)
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Figure 5

New mobility concepts have experienced explosive growth in the past three years

Q: Have you used the mobility solutions that you are familiar with?

Percentage of respondents

<table>
<thead>
<tr>
<th>Solution</th>
<th>2014</th>
<th>2017</th>
<th>Change compared with 2014</th>
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<tr>
<td>Bike sharing</td>
<td>13%</td>
<td>73%</td>
<td>~5.5x</td>
</tr>
<tr>
<td>E-hailing*</td>
<td>15%</td>
<td>62%</td>
<td>~4.1x</td>
</tr>
<tr>
<td>E-hailed Taxi</td>
<td>20%</td>
<td>56%</td>
<td>~1.4x</td>
</tr>
<tr>
<td>Car rental</td>
<td>30%</td>
<td>25%</td>
<td>~1.3x</td>
</tr>
<tr>
<td>B2C car sharing</td>
<td>10%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>C2C car sharing</td>
<td>13%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Electric bike sharing</td>
<td>7%</td>
<td>13%</td>
<td>~1.5x</td>
</tr>
<tr>
<td>Bus sharing</td>
<td>15%</td>
<td>34%</td>
<td>~4.1x</td>
</tr>
</tbody>
</table>

*E-hailing for 2017 includes e-hailed hitchhiking and e-hailed express/premier; for 2014 includes ride sharing from the established locations or arranged via computers or smartphones.

Notes: Regular usage is defined as using once a month or more frequently; sporadic usage is defined as using less than once a month.

Source: Bain China New Mobility 2.0 Survey, 2017 (n=1,950)

Figure 6

Time spent on the road still tops the list of travel pain points

Q: Which are the top three pain points you have regarding your current mobility needs?

Percentage of respondents

<table>
<thead>
<tr>
<th>Pain Point</th>
<th>2014</th>
<th>2017</th>
<th>Change compared with 2014</th>
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</thead>
<tbody>
<tr>
<td>Overall travel time</td>
<td>71%</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>Waiting time for trip start is shortest</td>
<td>59%</td>
<td>52%</td>
<td>~1.5x</td>
</tr>
<tr>
<td>Can work/get online/have entertainment during trip</td>
<td>51%</td>
<td>51%</td>
<td></td>
</tr>
<tr>
<td>Don’t need to change means of transport during trip</td>
<td>50%</td>
<td>48%</td>
<td>~1.3x</td>
</tr>
<tr>
<td>Can carry bulky objects</td>
<td>48%</td>
<td>40%</td>
<td>~2.3x</td>
</tr>
<tr>
<td>High privacy</td>
<td>37%</td>
<td>34%</td>
<td>~1.1x</td>
</tr>
<tr>
<td>Smooth and comfortable ride</td>
<td>48%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Energy spent or distance</td>
<td>48%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Flexibility to change means of transport or destination</td>
<td>48%</td>
<td>40%</td>
<td>~1.2x</td>
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</table>

Source: Bain China New Mobility 2.0 Survey, 2017 (n=1,950)
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Figure 7

Car ownership as a status symbol is fading

Q: Does owning a car improve one’s social status?
Q: How has the importance of cars as status symbols changed over the last five years?

End customer perspective

Source: Bain China New Mobility 2.0 Survey, 2017 (for 2014, n=2,137; for 2017, n=1,950)

Figure 8

Drivers are most likely to give up their car because of heavy traffic

Q: To what extent will selected factors stop you from owning or purchasing a car?

Car owners

Potential car buyers

Traffic congestion

Will triple

24%

Will double

12%

Remain unchanged

2%

Very easy*

23%

Fairly easy

15%

Remain at current level

4%

Traffic congestion

Will triple

25%

Will double

14%

Remain unchanged

3%

Public transit

Comprehensive improvement on multimodal connectivity

19%

Improvement on entire coverage

10%

Partial improvement

4%

Partial improvement on multimodal connectivity

23%

Improved on entire coverage

12%

Partial improvement

5%

Availability of mobility services

Very easy

21%

Fairly easy

12%

Remain at current level

2%

*Very easy=1-minute wait; fairly easy=2-minute wait; current level=5-minute wait

Source: Bain China New Mobility 2.0 Survey, 2017 (n=1,950)
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A disaffection with car ownership?

In 2014, we asked more than 2,000 Chinese consumers in Tier-1, -2 and -3 cities if owning a car improves one’s social status. At the time, almost 60% agreed. In three short years, car ownership has lost some of its luster. In our 2017 survey, less than 50% said that owning a car improves social status. Commute time—a function of China’s worsening traffic congestion—is the top concern. In addition to tracking the slowing growth of car ownership in China, our continuing research has helped illustrate other dimensions of mobility. Our analysis of publicly disclosed deals shows that investment in the mobility industry rose from around $2 billion in 2014 to around $21 billion in 2017. The e-hailing market grew from $5 billion with 30 million users in 2014 to $30 billion with 217 million users in 2017. The market for unlocked shared bikes, which was nonexistent in 2014, now totals 120 million monthly active bikes.

equal measure—24% vs. 25%—car owners and potential car owners say they would not buy a car if China’s traffic congestion tripled in the coming years. The availability of very easy mobility services would lead 23% of car owners and 21% of potential car owners to avoid purchasing a car. Meanwhile, the long waits that are commonplace in multimodal public transit are another big factor. Our survey found that 19% of car owners and 23% of potential owners would not buy a car if multimodal connectivity in public transit were comprehensively improved.

An industry in transition

As China’s mobility ecosystem expands, it is likely to change its shape. For example, Didi, the major e-hailing player, now captures 90% of all e-hailing trips and 40% of the volume among e-hailing traffic portals, according to our survey (see Figure 9). A number of factors could alter that situation, everything from the emergence of local and regional players to a consolidation among traffic portals to a rise in the use of such options as WeChat and other social commerce platforms. Already, as many as 50% of all e-hailed rides are ordered from platforms such as WeChat, Dianping and Alipay. This opens up the opportunity for competing e-hailing players to catch up if they form the right partnerships with these or other lifestyle portals. Another major change: the coming introduction of autonomous vehicles. Among our survey participants, 26% said they expect autonomous vehicles to be a significant urban mobility solution within three years (see Figure 10). Indeed, e-hailing companies and others in China’s booming mobility industry are likely to amass fleets of autonomous vehicles in the years ahead.

As the industry achieves scale and the market becomes rationalized, we envision a scenario in which profit pools could shift away from original equipment manufacturers (OEMs) to downstream services, with mobility platforms and customer interfaces reaping margins of more than 20% and value-added service providers achieving more than 15% margins (see Figure 11).

What this means for OEMs

A potential profit pool shift is among the many important changes facing OEMs. For example, traditionally, an automaker’s business model focused on designing, manufacturing and selling cars. Now, the new mobility trends are requiring OEMs to rethink that business model. Long accustomed to keeping product development and other capabilities in-house, OEMs will need to partner with service providers and others in the value chain—to capture their share of the growing profit pool by finding new revenue streams to compensate for slower growth in car sales. By partnering with the likes of Baidu, Alibaba and Tencent, for example, OEMs could access vastly more consumer data. Knowing consumers’ profiles in great detail—who they are, what they like, where they go for meals and so on—will allow automakers to better understand consumers’ commute occasions and behaviors. It positions them to form alliances to provide location-based advertising or other innovative services or products, expanding their role in the mobility ecosystem to boost revenues and profits.
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Figure 9

Other local players could pose a threat to market leader Didi in the future

Didi dominates by GMV…

China e-hailing market share by gross merchandise value (SRB)

-30

Other

Didi

2017

... but Didi app captures only about 40% of e-hailing traffic portals

Percentage share of e-hailing order frequency among platforms/portals for regular e-hailing users (n=1,208)

Players in control of e-hailing traffic portals can determine the direction of traffic, threatening Didi’s position; regional opportunities, such as Tier-3 cities, also exist

Source: Analyst reports; 2017 China Internet Mobility Market Report by Analysys; expert interviews; Bain analysis; 2017 Bain China New Mobility 2.0 Survey, 2017 (n=1,950)

Figure 10

Consumers have mixed feelings about autonomous vehicles

Q: Which mobility concepts will become your significant urban mobility solutions within the next 10 years (2017-27)?

Potential usage of selected mobility concepts

Potential usage within 3 years □ Potential usage in 3–5 years □ Potential usage in 5–10 years □

Bike sharing: 67
E-hailed express/premier: 62
E-hailed hitching: 61
E-hailed taxi: 59
AV: 57
B2C car sharing: 55
Car rental: 52

Note: Respondents defined potential future use of a solution by answering likely, very likely or definitely
Source: Bain China New Mobility 2.0 Survey, 2017 (n=1,950)
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For their part, e-hailing and car sharing services need to prepare for the many ways they are likely to be affected by the mobility ecosystem as it evolves. A single example: The e-hailing business, which now depends on individual drivers, will become completely transformed with the expected arrival of autonomous vehicles. Like OEMs, these players could adapt their business model to leverage the explosive growth of consumer data to deliver location-based advertising. Or, there may be a market for integrated commute-planning platforms that seamlessly help commuters plan the most efficient travel using all modes of transportation. For all players, getting ahead of these shifts means not only understanding how an existing business model is affected and how to mitigate the risks, but also evaluating the potential opportunities.

The mobility ecosystem is growing and taking shape, and as it does, one message is becoming clear: Outpacing rivals will mean creating the right alliances to build the needed capabilities while carefully managing the risks that are inherent with any new and dynamic industry. In the world’s largest mobility market, no company will be able to win alone.

OEMs are already moving in this direction. Many of them have launched or piloted their form of mobility business—Daimler has Car2Go, BMW has ReachNow, SAIC has EVCARD and Ford has a shuttle-sharing service, Chariot. Meanwhile, some OEMs have formed partnerships with mobility platforms such as Didi to offer customized vehicles for their fleets.

OEMs will need to get ahead of other big changes, too. For example, with the rise of e-hailing and other new mobility options, consumers are more and more likely to view cars as commodities. In fact, our study found that when e-hailing, consumers tend to care most about the cost, waiting time and driver ratings—and much less about the brand of the car in which they travel. This is a shift with huge potential implications for OEMs that for decades have worked hard to build and maintain differentiated brands. Another significant consideration: With mobility platforms such as Didi and emerging corporate car sharing companies about to make up a growing segment of the market for vehicles, more OEMs may soon be required to customize cars for these new and important customers—even as they learn how to sell to a different customer base.

For their part, e-hailing and car sharing services need to prepare for the many ways they are likely to be affected by the mobility ecosystem as it evolves. A single example: The e-hailing business, which now depends on individual drivers, will become completely transformed with the expected arrival of autonomous vehicles. Like OEMs, these players could adapt their business model to leverage the explosive growth of consumer data to deliver location-based advertising. Or, there may be a market for integrated commute-planning platforms that seamlessly help commuters plan the most efficient travel using all modes of transportation. For all players, getting ahead of these shifts means not only understanding how an existing business model is affected and how to mitigate the risks, but also evaluating the potential opportunities.
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