

The rapid growth of bike sharing in China – good news for city mobility?

The explosive growth of the bike sharing business in China, and the implications for new mobility



With significant venture capital injected, bike sharing has been booming rapidly in China since the second half of 2016, and already looks to be impacting the future development of the urban mobility ecosystem. Arthur D. Little considers the market dynamics and competition landscape, as well as some key takeaways for different stakeholders, including city authorities, the existing bicycle supply chain, and the new entrant bike-sharing companies themselves.

Since the second half of 2016, the bike-sharing business has been booming in China

China used to be the “Kingdom of bicycles,” the biggest market for bicycles in the world. Since the start of the 21st century, however, with the rapid increase of private cars and the convenience of public transportation such as metro rail, the use of private bikes has dropped. However, thanks to the prevalence of smartphones, mobile payment via Alipay and WeChat, and the decreasing cost of GPS devices, a new business model of bike sharing has been enabled – and undergone explosive growth. The number of people riding bikes has dramatically increased since the second half of 2016, especially in Tier 1 cities, including Beijing, Shanghai, Guangzhou and Shenzhen. There are three key features of this new wave of bike sharing:

- 1) The ease of use based on digital technology.** GPS and cloud are largely deployed in locating shared bikes. Users can easily use apps and QR codes via their smartphones to make locks open on bikes automatically¹.
- 2) Fashionable appearance and high technology in design.** Bikes for sharing have highly standardized designs and colorful looks, with strong branding, and are built for convenience. In addition, the high technology applied appeals to a younger target market with novel features that include solid tyres (no need to inflate), carefully designed light frames, and solar panels in baskets to support the GPS function.

- 3) Pick up and drop anywhere.** In contrast to other regions in the world, such as Europe, where shared bikes need to be

parked in defined areas and locked up to posts, Chinese users can pick up and drop shared bikes anywhere, which is very convenient, compared to the option of a private bike. When the bike is locked up again, the user pays a fee calculated based on the length of time taken during the ride. Depending on brands, the payment for a 30-minute ride can be as little as 0.5 or up to 1 RMB. Due to its convenience and ability to address last-mile transportation, such business models have gained popularity rapidly.



Fierce competition among bike-sharing service providers

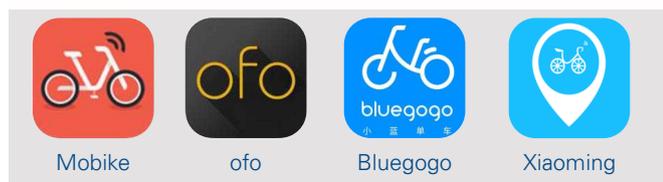
In early 2017, there were 29 brands providing bike-sharing services in China, with more than 10 million bikes in the market and 100 million registered users.

Mobike and OFO are two leading brands. Each has received investment above 600 million USD. New brands, including Xiaoming, Bluegogo, Hellobike, Qibei, etc., have also received

¹ For certain brands e.g. OFO, users need to manually enter a PIN code

substantial investment. Intensive battles to grasp market share have started, with thousands of shared bikes put into the market. The name of the game has been to capture the local market first, and the competition has reached the highest level in Tier 1 cities such as Beijing, Shanghai and Guangzhou.

Example of bike-sharing service apps on smartphones



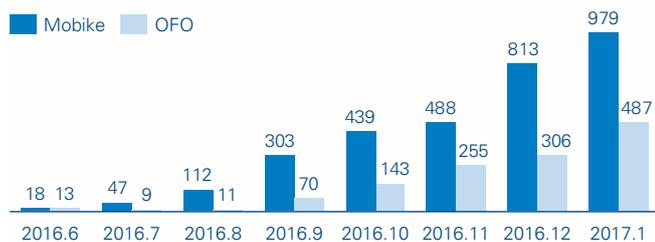
Source: Arthur D. Little

For Tier 2/3 cities, the battle has also intensified. In the first quarter of 2017, OFO increased the speed of its service launch in new cities, averaging one new city per week. In one 17-day period in April, it launched in 30 new cities, increasing coverage to a staggering 100 cities in China. The company has started to penetrate Tier 4 cities as well.

Mobike was founded as recently as April 2016. Within one year, the company had entered 49 cities in China, and in all has put more than 3 million bikes into the Chinese market. Mobike uses intelligent automatic locks, and its bikes have a hi-tech appearance. GPS and cloud are deployed in locating bikes and collecting information, which help users to find available bikes through apps. It also facilitates maintenance and repair for the operator.

Average daily active users

Unit: thousand user*times daily



Source: QuestMobile, China Daily

With cloud and big data, Mobike also conducts regular “hot-areas” analysis in order to check the balance between demand and supply in different locations. Based on such analysis, the company adjusts the number of bikes and decides on new locations for shared bikes. In early 2017, Mobike established a strategy alignment with Baidu Cloud. Together, they have launched “Mobike Preferred Location” in Beijing, aiming to tackle issues from the chaos of “drop anywhere.” Baidu Cloud also helps to realize more precise bike locating and closer monitoring, so the efficiency of operations can be improved. Such big data addressing “last-mile” transportation could also be leveraged by city governors to plan for more integrated urban mobility systems.

Current issues and pain points for service providers and city governors

Challenges for daily operational management. “Pick up and drop anywhere” is convenient, but due to the large number of shared bikes in areas with high traffic, such as train and metro stations, they easily become road blockers under poor management.

Another challenge for business service providers is that shared bikes tend to get damaged. According to some sources, the damage rate is as high as 20%. OFO and Mobike have started to reach out to a number of individual bike-repair service providers and hire them to repair broken bikes. In June 2017, a small player Wukong Bikes became the first bike-sharing company to go out of business. Ninety percent of its bikes (~1,200 units) were missing, linked to the fact that the company had not installed a GPS systems on their bikes.



How to achieve a profitable business model. In order to grab more market share in the initial stage of market entry, each brand tends to put large numbers of shared bikes into cities. In addition, significant amounts of subsidies, such as free rides, cashback and lottery entries, are given to customers as incentives. In that respect there are similarities to the competition between Uber and Didi in China, before Didi eventually acquired the business of Uber in China.

Additionally, the cost of maintenance and daily management, and the loss from vehicles being damaged or stolen are hurdles to achieving profitability. All service providers have been busy looking for investors, because there is no profit for growth so far. Surviving the current competition first and then looking for a profitable business model is the current, relatively high-risk strategy for these businesses.

So when will such businesses make reasonable margins? Most likely it will be after the fierce battles among current brands are settled and further consolidation of the industry has occurred – when lower production cost per unit and operational efficiency can be achieved with economies of scale.

Governors need to expedite generating and enforcing regulations to guide and facilitate industry development. For city transportation governors, one big issue is safety. With the rapid increase of private cars, especially in

Tier 1 and 2 cities, many roads in downtown areas don't have separate lanes for bicycles anymore. Even where separate lanes do exist, motorcycles and scooters use the same lanes as bikes do, which poses a threat to safety.

By April 2017, nine cities, including Beijing, Shanghai, Shenzhen, Tianjin, Hangzhou, Jinan and others, had released either official or draft regulations with the objective of strict monitoring and setting up of standards for the bike-sharing business. How to guide and supervise the industry to develop healthily? How to solve the city road-infrastructure issue and make cities friendlier to "green" transport modes? How to strengthen the social credit system? These are important topics for city governors.

In addition, facilitating the development of "smart cities" and integrating the bike-sharing model into a multi-modal and efficient city-mobility system, is a broader topic.

Supply chain – production of new bicycles and main components are under short supply, while risks linger from capacity expansion

Although China is still the biggest bike production country, the majority of products are for export. Of the 80 million bikes produced in 2015, 72% were exported. For the domestic market, the production volume was 22.5 million, and has actually dropped by a CAGR of 4.5% since 2008.

Bicycle production volume in China (including e-bikes)

Unit: mn



Source: China national bureau of statistics

However, with the large amount of capital invested into the bike-sharing business and substantially increased orders, many bike manufacturers have shifted their focus from the export of private bikes to producing shared bikes for the domestic market. They have also started to expand their production capacity in order to seize this new opportunity. For instance, Fushida in Tianjin, a leading designer and producer of traditional bikes, recently expanded its annual capacity from 14 million to 20 million, in order to deliver an order of 13 million from OFO. Certain companies in other industries have also entered the battle. For example, Foxconn, a high-tech company which typically focuses on consumer electronics, telecoms, etc., has set up a strategic alliance with Mobike and developed bike production lines with a 5 million-unit annual capacity. This rapid increase in order volume has also led to shortages in raw materials and major components, such as bike frames, rims, tires, and seats.

The production volume for shared bikes is estimated to reach 30 million by the end of 2017. However, given the domestic demand of ~20 million for private bikes, the questions of whether the high demand from the shared-bike industry will be sustainable, and how to utilize the newly developed capacity next year, will be an issue for the industry. Considering the high overcapacity risk, it is important for traditional bike brands to ensure that the increased capacity for shared bikes is flexible and can be converted into capacity for other major demands, such as export, in order to mitigate risks should volumes drop.

Implications for urban mobility ecosystem

Will bike sharing eventually solve the problems of the traffic congestion and squeezing on public transport, especially for metros during rush hour, as many people expect? Unlikely. Bike sharing addresses the need for the last 1–4 km part of a journey, to reach "the door" of the destination. Industry statistics show 86% of shared bike usage is for journeys of less than 4km. Meanwhile, for long distance, people who travel by car, taxi or metro are unlikely to give up the speed and/or comfort they get. Weather is another influencing factor.

In the long run, the key focus areas for bike sharing will likely be major metro/bus stations, big commercial centers, and university campuses, etc.

It is important to integrate bike-sharing services into the whole urban mobility system. Urban mobility is a key challenge for cities globally, particularly given under-satisfied customer needs and possible extension of traditional mobility ecosystems. Findings from ADL's FUM 2.0 ("Future of Urban Mobility 2.0 – Imperatives to share extended mobility ecosystems") show that the majority of cities in the world are badly equipped to cope with the mobility challenge, and the main root causes of poor performance are lack of system-level innovation and collaboration.

In China, current mobility-service platforms, such as Didi, have started integrating the OFO app into their platforms to facilitate more convenient journey planning. For service providers of car sharing (although still at an early stage in China), introducing bike-sharing services near parking lots will also help to capture the opportunity and meet the requirements of last-mile travel.

Conclusion

With the new opportunities from bike sharing in China, relevant players in the ecosystem have plenty to consider:

For *bike-sharing service providers*, apart from seizing market share given the fierce competition, it is also essential to:

- Improve customer experience and differentiate their products and services. For instance, to address the current customer pain point of being unable to identify broken bikes

beforehand, they could set up remote-diagnosis systems and more effectively collect feedback from customers about damages and problems.

- Increase profitability by creating new sources of revenue, e.g., advertising, precision marketing, focus on youth clubs, and collaborating with industrial parks, hotels, and commercial centers to get the best “preferred locations.”
- Enhance the efficiency of daily operations and leverage big data to optimize “tide” (insufficient supply during rush hour, while bikes are idle during non-rush hour), e.g. inviting retired citizens who live near major parking places to help put bikes in good order and check the status.
- Standardize and reduce the cost of repair by analyzing the frequencies of breakdowns and equipment failure, identify root causes and improve the product design.

Traditional bike brands and bike manufacturers need to define clear strategies to deal with this new disruptive influence to their business model. On the one hand, they need to focus on how to improve R&D, upgrade production and provide innovative solutions to service providers, in order to win orders. On the other hand, given the risk from overcapacity, they should also keep new production lines flexible, so they can be easily converted and address other major segments, e.g., high-end products for export.

For *other related stakeholders*, including mobility platforms such as Didi, and car-sharing service providers (including OEMs), collaboration with bike-sharing services to address last-mile transportation will help to improve the customer experience.

For *logistics providers*, which transport bikes from manufacturers and store parts and sub-assemblies, providing other value-adding services along the value chain should also be considered. Huawei Logistics has started to provide assembly services to OfO in Shanghai, and WISCO Logistics is planning to provide maintenance services to Mobike in Wuhan. In logistics, leveraging nationwide coverage and setting up strategic alliances to provide fully-fledged services, including long-haul and inner-city transportation, warehousing, maintenance and recycling, should be considered in order to capture the opportunity.

For *city governors*, it is important to release regulations for industry monitoring and supervision as soon as possible, in order to achieve healthy development of this new business model. In addition, they should take bike sharing as an opportunity to start to plan for multi-mode mobility ecosystems, in order to deliver more integrated, seamless, efficient and greener mobility solutions to local citizens.

There is plenty to think about for all interested parties. But there is no doubt that the phenomenon of 21st-century bike sharing is a big hit so far in China.

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