

Research on Shared Bicycle Business Mode against the Background of Shared Economy

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Abstract—Along with the continuous development of the shared economy, all kinds of emerging Internet companies have been attracted by public attention and capital. The shared bicycle industry has become an important part of the shared economy in recent years. From the second half of 2016 to the first half of 2017, the shared bicycle industry has completed multiple rounds of financing and flourished. This paper studies the business model of shared bicycles. Through the analysis of operation model, profit model, and marketing model in shared bicycle, we find that its business model has some problems such as relatively single profit model, unreasonable regional allocation, and the lack of competitiveness marketing and so on. Base on the above analysis, we finally propose some suggestions for improvement, such as diversifying profit model, optimizing regional allocation and diversifying marketing model.

Keywords—shared economy; shared bicycle; business model

I. INTRODUCTION

Shared economy was initially proposed by Professor Martin L. Weitzman in 1984. The shared economy is the right to hire other people's idle resources conveniently, and to achieve transaction and create value through sharing platform. In the shared economy, the supplier provides the benefit through the use of the platform, and the user also reduces the cost. The cost of the two is reduced, and the purpose of saving resources and protecting the environment is achieved. The shared economy is a new economic mode that responds to green development.

The Chinese government attaches great importance to green development and encourages sharing of economic development. In the fifth Plenary Session of the 18th CPC Central Committee, the Communist Party of China clearly proposed a new concept of economic development, namely "innovation, coordination, green, open, sharing". With the rapid development of the mobile Internet, the shared economy has made rapid and vigorous development in China. According to China's economic development report 2017, China's shared economic market reached 3948 billion RMB in 2016, the growth rate was 76.4%, the financing scale reached 170 billion, and the shared economy related enterprises increased 3 times over the same period, covering travel services, financial services, living services, technology services, production services, short rents and so on. In 2016, there were about 60 million participants in the field of shared economy, and 600 million consumers who shared the economy. It is expected that the shared economic

growth rate will still reach 40% in the next few years. The shared economic market will break through 10 trillion in 2020, and the proportion of GDP will reach more than 10% according to this development trend.

As a branch of the shared economic field, shared bicycle is a new hot spot in the shared trip market because it meets the low carbon travel concept and solves the user's "last kilometre" trip pain point better. In recent years, shared bicycle has achieved rapid development. The data showed that as of the end of 2016, China's shared bicycle market has reached 1.23 billion RMB, the user scale has reached 28 million, and the industry financing has exceeded 6 billion RMB. It is expected that by 2018, China will have shared bicycle market of 17.82 billion RMB, the annual growth rate of 674.4%, the size of the user will reach 298 million people, will continue to maintain ultra-high speed growth.

II. THE DEVELOPMENT PROCESS AND PRESENT SITUATION OF CHINA'S SHARED BICYCLE

A. Concept and Characteristics of Shared Bicycle

At present, intelligent shared bicycle is a new way of bicycle travel, which is used to find bicycles and pay by online APP, and unlock the bicycle by offline scavenging, and monitor the health and operation state of bicycles through remote real-time monitoring. Shared bicycle industry in China has the following characteristics:

1) Creating the resource value

The shared economy creates value by transferring idle resources. The essence of shared bicycle is to create sufficient resources, so as to bring potential value into play and drive related resources development to reduce idle and waste.

2) Integration of Internet technology

In the background of "Internet plus", enterprises and users use Internet technologies including mobile payment in the shared bicycle platform to complete the online and offline transactions, which creates a new business value of each one takes what he needs.

3) Convenient and efficient

As a convenient way for urban users to travel, shared bicycle can improve traffic congestion, meet the maximum traffic demand and improve the efficiency of urban traffic operation. At the same time, bicycles can be found quickly by

APP location. Users can travel conveniently and meet the pursuit of high quality low carbon life.

4) Meet the needs of both supply and demand

Enterprises get rent through a short lease on the shared bicycle platform, and the users get a short time to use the bicycle by mobile payment, which meets the needs of modern fast life.

B. Development History of Shared Bicycle

China's share bicycle market has gone through three stages. The first stage was the government-led municipal bicycle from 2007 to 2010. The second stage was enterprise-led contracting municipal bicycle from 2010 to 2014; the third stage was from 2014 to 2018. With the development and integration of the mobile Internet, the Internet shared bicycle headed by Mobike and OFO, began to go online and made great progress.

TABLE I. DEVELOPMENT HISTORY OF SHARED BICYCLE

	Development stage		
	First stage	Second stage	Third stage
Time	2007-2010	2010-2014	2014-2018
Market leading	Government-led	Enterprise-led contracting	Internet shared bicycle
User scale	Small and slow growth	Scope expanded and gradual growth	Broad coverage/continuous great growth
Market share	100%	80%	OFO:51.2% Mobike:40.1%
Investor	Government invest	Enterprise contract	Various financing
Bicycle type	Piled bicycle	Piled bicycle	Pile-free bicycle

C. Current Development Situation of Shared Bicycle

1) Development environment of shared bicycle

From the development environment of shared bicycle, the national and local governments have always held a positive attitude towards shared bicycle, and the rapid development of the mobile Internet and the popularity rate of smart phones have laid a good foundation for the penetration and development of shared bicycles, and as environmental pollution and urban congestion are becoming more and more serious, the demand of government, capital and users on the improvement of travel environment is becoming more and more intense. The shared bicycle has won the social favor and the government's encouragement and support with its environment-friendly and efficient travel mode.

2) Scale of shared bicycle market

With the popularity of shared bicycle, this mode of travel is being chosen by more and more people. According to the "Research Report on the market prospects and investment and financing strategy for 2018-2023 years to shared bicycle industry" issued by the China Commercial Research Institute, China's shared bicycle market will reach 17.82 billion RMB in 2018, and the growth rate is 73.3%. By 2020, the scale of shared bicycle market will exceed 30 billion RMB. In terms of user scale, shared bicycle has become the most significant Internet application type in user scale growth. According to statistics, as of December 2017, the number of shared bicycle users has reached 221 million, accounting for 28.6% of the

total Internet users. According to the Industrial Research Institute predicted that in 2018 the shared bicycle user scale will reach 298 million people.

3) Competition pattern of shared bicycle industry

After several years of development, China's shared bicycle industry has gradually developed from a regional and decentralized market pattern to a relatively concentrated competition situation at present, and has emerged as a leading industry with national layout, predominance and scale effect, which occupies the vast majority of the market share. For now, the industry competitors can be divided into Mobike/OFO and others. The two level of differentiation is more serious. The strength of the head enterprises is strong, and the other small enterprises are seeking survival [1].

III. INTRODUCTION TO BUSINESS MODEL OF SHARED BICYCLE

A. Operation Management Model

The shared bicycle is a new bicycle combined with the Internet "APP+GPS smart lock"; through the sharing platform to provide various services to operate management, to achieve value promotion and profit. Taking Mobile as an example, its operation model is as follows:

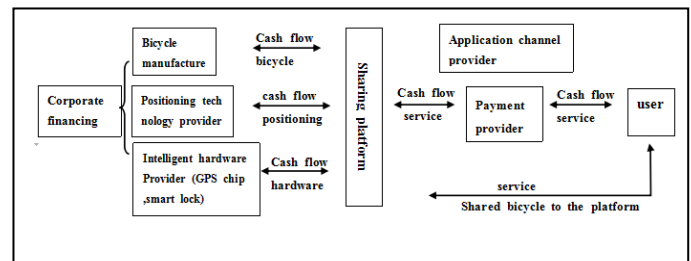


Fig. 1. Operation model of shared bicycle

1) Sharing platform and supplier

According to their own resources, the supplier sends the value and capital flow to the sharing platform of shared bicycle, and the platform returns some revenue to the supplier in the form of cost.

2) Sharing platform and user

According to the bilateral market theory, the user's entry volume is the source of the whole system, and the direct profit income of the sharing platform is the cash flow given by the user to enjoy the service provided by the shared platform.

3) Sharing platform and payment platform operator

Sharing platform completes the operation of the cash flow to provide convenient payment services for users through the third party payment platform. The habit of mobile payment has helped the two platforms make joint profits, and their respective values have been raised by [2].

B. Profit Model

The profit mode of shared bicycle is mainly based on its "deposit plus time sharing lease mode. When using the shared bicycles, user must pay a deposit before they can be used normally. Most users will not immediately return the deposit for the next time riding. The deposit forms a huge capital flow and become a stable source of profit for the shared bicycle

provider^[3]. For example, Mobike will charge a 299 RMB deposit before riding. After the riding, the deposit will not be returned automatically. It requires the user to submit the application manually, and the deposit is returned for 2-7 working days, which provides space for the service providers to rely on large data to obtain the deposit proceeds. In addition, the shared bicycle provider is also realized by the time sharing lease. The user also needs to pay a rental fee for bicycle riding. In terms of the Mobike, the user cycled 1 times a minimum of 0.5-1 RMB, and the standard for the ride in the city is 0.5 RMB / half an hour.

C. Marketing Model

A product's growth needs marketing assistance, and the marketing model of shared bicycles is mainly reflected in network marketing^[4]. For example, Mobike pays much attention to the operation of social media, mainly using Weibo and WeChat to publicize, to expand the number of shared bicycle user by inviting friends to pay attention to the platform for red packets and coupons. In brand promotion, shared bicycle is good at making use of story feelings and enhancing brand emotion to attract users and get user support. In addition, shared bicycle also played a subsidy marketing strategy. For example, Mobike launched a "30-day free riding" and "charge 100 for 110 free activity", and in order to stimulate users to ride, it has also launched a new activity called "riding for red packets".

IV. EVALUATION OF CURRENT SHARED BICYCLE BUSINESS MODEL

A. The Advantages of Shared Bicycle Business Model

1) The convenience attracting users

Compared to municipal bicycle, shared bicycle is more popular. The main reasons are the follows:

- a) *Pile-free parking*: solving the parking difficulty.
- b) *No need to request a card*.

c) *The unique positioning function*: easy to find the bicycle, and through the Internet, smart phone to unlock the code, after riding it can be parked in the prescribed parking.

2) Having huge data records for reference

User riding track and time are valuable data. First, it can make the enterprise master the first line information of the user's needs, improve the service capacity of shared bicycle. Second, the large data of shared bicycle can not only create service system for the service provider, but also provide the data reference for the Government Transportation.

B. The Deficiencies of Shared Bicycle Business Model

1) Self-credit mechanism is not perfect

The shared bicycle uses the "use and stop" system and GPS monitoring mechanism. This requires users to have high moral self-discipline to cooperate. Even in the developed cities in the coastal areas of China, there are many phenomena, such as the irregular parking, the obstruction of traffic and the destruction of vehicles, increase the difficulty in the management and operation cost of the shared bicycle. Although the provider has set up a credit mechanism in APP to reduce this phenomenon

and control users' use of bicycles through credit points, this problem still needs more investment to solve.

2) The cost problem is still plagued

The operation and maintenance of shared bicycle still has the high-cost problem. In the cost of delivery, the bicycle body cost plus positioning faculty and other configurations in the lock for each bicycle are up to 2000 Yuan, and the improper delivery will also lead to high cost. In the operation and maintenance, it is necessary to check and repair the shared bicycle regularly, which will inevitably cost a huge amount of manpower and financial resources, and most of the funds cannot be used for R&D and business development.

3) Unreasonable regional delivery

The issue of delivery has always been a problem of shared bicycle. In some areas, the coverage rate is too dense, causing a large amount of bicycle accumulation, occupying environment space and causing inconvenience. It is forbidden to continue to put in by relevant departments. In some areas, it is difficult to find the bicycle, and inconvenient for the users. This requires shared bicycle platform to make real-time assessment and proper delivery, improving the user's bicycle-using problem.

4) The profit model is relatively single

The profit of shared bicycle depends mainly on the deposit and riding lease fee. But the profit margin is not large. Under the condition of high cost of bicycle and nearly 10% of vehicle breakage rate, it is difficult to make up for the cost. At the same time, due to the lack of a clear process service system, the low efficiency of operation makes it even more difficult to make profits. Therefore, building a shared economic ecosystem is a way of transformation to shared bicycle.

5) *The marketing channel is relatively simple and lack of competitiveness*

Product marketing often comes out of three demands: building cognition, educating users and word-of-mouth. As a way to solve the user's "last mile" trip pain point, the marketing channel of the shared bicycle is relatively unitary and does not grasp the product kernel to carry out propaganda. It often uses subsidies such as "free riding" and "riding for red packets" to attract the attention of the users. In terms of user stickiness, the pursuit of user experience remains to be further strengthened, not enough attention has been paid to the marketing purpose of using the user's word-of-mouth and fan effect. At the same time, marketing should not be limited to travel tools, and the scope of its service should be expanded.

V. SUGGESTIONS ON BUSINESS MODEL OPTIMIZATION OF SHARED BICYCLE IN THE FUTURE

The business model of shared bicycle is a new business model derived from the shared economy in recent years. It needs to break through the innovation. After all, in this era of Internet, we should keep pace with the times and continue to innovate own internal models.

A. Perfect credit mechanism

In order to standardize the user's behavior, shared bicycle provider such as Mobike has launched the "credit score" in APP to standardize the use of shared bicycle, but also to improve its own credit management, form a set of their own

credit system. At the same time, it may also consider the cooperative with the social credit system, transportation department and so on^[5]. For example, shared bicycle provider can collaborate with the transportation system to intelligently judge the user's score on the trip and parking through the positioning tracking in the APP after scavenging, so as to be included in the "credit score". In this way, we can make greater efforts to ensure the standardization and civilization of riding.

B. Exploring multiple profit models

1) Strategic cooperation

The large riding and time data contained in the shared bicycle is the most attractive capital. The shared bicycle service provider can cooperate with other enterprises that lack the resource to get what they need.

2) Development of services and derivatives

At present, APP is only the way to unlock the shared bike, and the enterprise should extend its value deeply, develop some derivatives and services on the APP platform to build consumer field and consumption impulse. For example, to create a service project "the love of the bicyclers" for the shared bicycle, using the riding data on the shared bicycle. Statistics show that users who use the shared bicycle can also push the activities you want or the surrounding activities on APP for a place they like to consume. Shared bicycles should make full use of their own data and develop market analysis in order to increase market when developing derivatives^[6].

3) Reasonable planning fund

Shared bicycle enterprise can plan a variety of channels for the deposit of the account, and put it into different fields to find new development direction to create new economic benefits.

C. Extended ecological operation strategy

The current operation model of the shared bicycle is relatively simple. It needs to broaden its own operational ideas, not only be limited to the current operating system, and need to expand its own business service scope, and use its own advantages to combine with some services to realize its own ecological operation strategy.

1) Shared bicycle + short trip

Shared bicycle can be integrated into the short journey service; after all, the shared bicycle is mainly used in the same city. With its own positioning and large data, such as a series of scenic spots, services and other conditions of the region are clearer, so that the shared bicycle service provider can open short distance service functions in the same city such as tickets, food and so on. Along with the screening of "hot tourism points" nearby, guide users to travel, so that users can enjoy riding while enjoying the short distance service provided by shared bicycle.

2) Shared bicycle + online car-hailing

Shared bicycle can expand their business in the field of online car-hailing after successful establishing bicycle travel service market. The shared bicycle has its own GPS system, and has relatively complete big data, including route, riding data and real-time location, which are not inferior to Didi. So shared bicycle providers can occupy a certain foundation in the

online car-hailing business. The enterprises can increase investment and expand the scope of its travel service.

3) Optimization of Regional Configuration

Shared bicycle needs to strengthen the use of its online GPS and riding data with the offline operation, make dynamic comparison between regional and regional delivery. The related information was feedback to the offline operation through the backstage; this ensures that excessive delivery of bicycles in the area should be regularly recycled to other scarce areas, rather than producing and delivering blindly and again. Enterprise should gradually improve the proportion of delivery, so as to make the regional allocation to achieve the best.

4) Implement diversified marketing strategy

Shared bicycle requires more online exposure, advertising by providing sponsorship for a popular hot TV program, and an unscheduled filming of different styles of microfilm at the core of shared bicycle to carry out brand publicity; make full use of the fan effect and sign a travel star to publicize its endorsement. The annual shared bicycle round city competition can be held to attract users to participate in it, which not only improves the attention degree, but also enhances the user impression and achieves the purpose of word of mouth marketing.

VI. CONCLUSION

As a new type of green economy, shared bicycle has made rapid development in recent years, and has become an important part in the field of shared economy. This paper discusses the business model of shared bicycle industry in China. Through the analysis, there are still some problems such as credit mechanism to be improved, profit difficulty, marketing channel being single, and so on, and puts forward corresponding optimization suggestions. Shared bicycle needs constant innovation and exploring diversified profit models and marketing strategies, optimizing regional allocation, etc. At the same time, the shared bicycle should go deep into the market and analyze the various needs of the users, grasp the core of the market demand, and design the products with market attraction and market competitiveness, which can make the enterprise gain the competitive advantage and base on the market in the fierce peer competition, thus realize the enterprise individuality brand strategy^[7].

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