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The Dilemma and Governance Path of the Emerging Internet  
Industry: Taking Sharing Bicycle as an Example

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# The Dilemma and Governance Path of the Emerging Internet Industry : Taking Sharing Bicycle as an Example\*

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**Abstract** In recent years, China's digital economy has shown a leapfrog development, with the emerging Internet industry constantly emerging, and digital economy has become a new economic form and become the main driving force of economic development. As one of the typical representatives of the emerging Internet industry, sharing bicycle interprets the feasibility of "model innovation" and "technological innovation" by analyzing the problems and reasons of its development model, and further considers the dilemma and governance path of the emerging Internet industry. On the one hand, with the leadership of the government, the emerging Internet industry has achieved unprecedented opportunities for development, but the influx of a large number of homogeneous enterprises has led to disorderly competition. The government needs to strengthen supervision, realize data sharing between the government and enterprises, and establish a sound credit system platform to regulate the market competition order. At the same time, we should not blindly follow the government's policy orientation, follow the general rules of market development, and use information technology to combine emerging industries with traditional industries to realize the transformation and upgrading of traditional industries. On the other hand, in the fierce competition of the Internet market, the oligopoly pattern of the head enterprises has been formed, and the enterprises without economies of scale will be merged or withdrawn from the market. The emerging Internet industry must be guided by "technological innovation". By combining big data and information technology, it is impossible to avoid being integrated into the ecosphere of large Internet enterprises, gaining a place in the Internet market competition, and maintaining a long-lasting vitality.

**Keywords** Sharing bicycle • Emerging Internet industry • Big data • Model innovation • Technological innovation

## 1. Introduction

China's digital economy has spawned a variety of new formats and new models of Internet enterprises through a series of information technologies, such as mobile Internet, big data, cloud computing, Internet of Things, artificial intelligence, and blockchain and so on. These Internet enterprises have

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created one business miracle after another. Sharing bicycle as "one of the four great inventions of China" has once been pushed to the forefront of the Internet economy.

With the help of capital, more and more enterprises have joined the market of sharing bicycles, and the amount of launch has been increasing. Among them, Ofo and Mobike have the largest amount of launch. The two giants Ofo and Mobike in the sharing bicycle industry were established in 2014 and 2015 respectively. Ofo had put on the market 4.85-5.10 million units by February 2017, and 17.8 million units in 2017. Mobike had put on the market 3.80-4.00 million units by February 2017 and 15.6 million units in 2017. Other peer companies include Xiaoming Bicycle, Bluegogo Bicycle and Youon Bicycle. According to the "China's Sharing Bicycle Industry Development Report in 2018" jointly issued by the Institute of Policy and Economics of China Academy of Information and Communication Institute (CAICT) and Mobike, about 2 million bicycles were put into operation in 2016, covering 33 cities in China. In 2017, the number of bicycles increased to 23 million, covering 200 cities in China. On the demand side, the total number of registered users in the sharing bicycle industry reached 18.864 million, with a total of 2.5 billion kilometers of cycling in 2016, and increased to 221 million and 29.947 billion kilometers in 2017. The sharing bicycle enterprises placed a total of 30 million orders, effectively alleviating overcapacity and creating new space for the traditional bicycle industry in 2017. Under the sharing bicycle model, the core of value creation in the bicycle industry will be transferred from manufacturing to operation and service. According to estimates, in 2020, the sharing bicycle enterprises represented by Mobike will create an economic output value of 71.4 billion yuan, including 40.8 billion yuan in manufacturing and 30.6 billion yuan in service.

The booming of sharing bicycles has benefited from the transformation of network information technology, the popularization of mobile network terminals, the travel needs of urban residents, the guidance of domestic government policies, and a good investment environment. In recent years, China's Internet penetration rate and Internet terminal penetration rate have continued to grow. As of June 2018, the number of mobile Internet users in China have reached 802 million, accounting for 98.3% of the total Internet users<sup>1</sup>. The rapid popularization of the Internet and the large number of Internet users have laid a good environmental foundation for the business of sharing bicycle. At the same time, the shortage of urban public transport services has become the core driving force for the vigorous development of sharing travel services. Sharing bicycle caters to the needs of urban residents in real-time, flexible and low-cost travel. It is quickly recognized by users for its readily available, convenient payment and simple operation. It not only improves the convenience of travel for consumers, but also reduces environmental pollution and solves a series of problems in urban development at this stage.

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<sup>1</sup> "The 42nd Statistical Report on Internet Development in China", China Internet Network Information Center.

## 2. Development model of the sharing bicycle industry

### 2.1 "Alternative" in the sharing economy

The reason why it is called "alternative" in the sharing economy refers to a special sharing form which is different from the real meaning of sharing economy. No matter from the definition of sharing economy<sup>2</sup>, or from the five modes<sup>3</sup> of sharing economy, from sharing bicycle, sharing car to sharing rechargeable treasure, sharing umbrella, sharing basketball, and so on, the emergence of a series of new innovative practices, are not strictly sharing economy forms.

First of all, from the perspective of resource allocation, the essence of sharing economy is to emphasize the integration and sharing of idle resources on the supply side through the Internet platform. Its core is to reuse or share idle resources, excess capacity, time and so on, in order to realize maximum economic efficiency and optimize the allocation of resources. The sharing economy cannot only match idle resources, but also configure high-quality resources. It is a new resource allocation method to achieves efficient matching of supply and demand. However, sharing bicycle does not belong to the category of idle resources. Instead, it invests in a new resource and further integrates it through the sharing of use rights, which violates the original intention of resource sharing. Although it caters to the travel needs of consumers, it is not the supply of social existing resources, nor can it realize the reconfiguration of social existing resources. It can be seen that sharing bicycle industry has not activated idle resources, but artificially created a large number of idle resources. Just in line with the characteristics of sharing resources using Internet platforms, sharing bicycle may be defined as a sharing economy in a broad sense<sup>4</sup>.

Secondly, from the perspective of asset model, sharing economy links supply and demand, which is itself an asset-light model, and its profit comes from the management costs extracted by both sides of the transaction. Sharing bicycle, which is respected as "one of the four great inventions of China",

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<sup>2</sup> Sharing economy is also called shared economy. In some studies, it is also differentiated. There is no specific distinction in this paper. According to the "China's Sharing Economy Development Annual Report 2017" issued by the China National Information Center Sharing Economic Research Center, it refers to the use of modern information technology such as the Internet to integrate and share vast amounts of scattered idle resources in order to meet the diversified needs of economic activities. In the "China's Sharing Economy Development Annual Report 2018", the definition is updated as follows: Sharing economy refers to the use of modern information technology, such as the Internet, to share the use of the right as the main feature, integrating massive and decentralized resources in order to meet the diversified needs of economic activities. The change is mainly reflected in the deletion of "idle", with "share of use rights" as the main feature.

<sup>3</sup> From the perspective of the characteristics of supply and demand, the sharing economy can be divided into five modes: C2C mode, both the supply and demand side are individuals; C2B mode, the supply side is the individual, the demand side is the enterprise; C2B2C mode, the enterprise intervenes between the supply and demand side; B2C mode, that is, the rent-for-sale mode; B2B mode, the supply and the demand side are enterprises.

<sup>4</sup> According to Tencent Research Institute's "Sharing Economic Development Research Report 2016-2017", sharing bicycle is also defined as the category of "generalized sharing economy".

has to go to the asset-heavy model<sup>5</sup> of free bicycle rental which relies on its production and launch with the pressure of capital promotion and competition. The hidden danger of the asset-heavy model is that the rate of loss is getting higher and higher as the scale of sharing bicycle is getting larger and larger. When the scale of sharing bicycle is getting larger and larger, the loss rate will be an astronomical figure. This means that the cost becomes more and more uncontrollable as the launch increases, and the launch itself has no end point. As a result, sharing bicycle has been forced by capital into an endless cyclical competition model of frantic financing–producing–launching–refinancing–reproducing–relaunching. Sharing bicycle is similar to “time-rent bicycles”, which is the same as the traditional rental economy.

Thirdly, from the perspective of property rights, the main feature of sharing economy is the sharing of use rights. Although there is also the sharing of ownership and use rights represented by used cars, sharing economy model of sharing bicycle only has the sharing of use rights. For example, the use rights of the Internet contract cars are consistent with the ownership, and the use rights are sometimes open. The owners of the Internet contract cars can share the use rights when the user pays. On the contrary, the ownership and use rights of sharing bicycle have been completely separated. The use rights are closed and only for paying users, and the ownership belongs to the enterprises that is engaged in bicycles, so the owners do not participate in the use. At this point, sharing bicycle has deviated from the essence of sharing economy, and cannot be defined as sharing economy only based on the sharing of use rights.

## ***2.2 Problems in the sharing bicycle industry***

### ***2.2.1 Negative externalities of sharing bicycle***

An important component of urban planning layout is urban transportation. With the development of cities in recent years, urban traffic congestion has become a difficult problem for the government. Through sharing bicycle, the “last 1km problem” to the destination subway station or bus station is solved. It can be expected that more people will choose the combination of public transportation and bicycle in the route selection to the destination instead of car. Sharing bicycle not only improves the convenience of consumers, but also alleviates congestion and illegal parking problems in the city. On April 12, 2017, Tsinghua Tongheng Planning Institute and Mobike jointly issued the “White Paper on Sharing Bicycle and Urban Development in 2017”. Before the emergence of sharing bicycle, the traffic means of people traveling mainly were 29.8% by cars, 31.2% by buses and subways, and 5.5% by bicycle. After the emergence of sharing bicycle, the proportion of cars dropped to 26.6%, buses and subways rose to 30.7%, and bicycles rose to 11.6%. It can be seen that the emergence of sharing bicycle has improved the utilization ratio of bicycles and reduced the utilization ratio of cars.

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<sup>5</sup> The traditional leasing economy not only needs to make up for the huge investment of fixed assets with rent, but also needs to bear the huge sunk cost risk, that is, the asset-heavy model.

However, while sharing bicycle brings positive externalities, a series of negative externalities also emerge. Although sharing bicycle caters to a large number of urban residents' travel demands to a certain extent, but the scheduling of sharing bicycle vehicles is difficult to completely match the demand for bicycles. The most important use of sharing bicycle is during rush hours to meet the “last mile” requirements of the public transport (subway, bus) users. However, a large number of demands gathered in the vicinity of the subway station and bus station, which made it difficult to store bicycles, and eventually piled up to companies and units downstairs. Moreover, as of the first half of 2017, with the rapid expansion of the scale of sharing bicycle in various cities, there were a series of online and offline problems, including online issues such as registration specifications, credit systems, and deposit management. There were also offline problems similar to the above-mentioned illegal parking and traffic hazards. Sharing bicycle reflects the problem of national quality, which must rely on a set of comprehensive regulations to punish violators to maintain normal business operations.

### ***2.2.2 The profit model of "burning money" for sharing bicycle***

The “burning money” in sharing bicycle is not only due to the positioning of its asset-heavy model, but also due to its use of subsidized free rides to enhance user stickiness. From the perspective of profit model, sharing bicycle mainly adopts the mode of “time-sharing lease + deposit”.

Firstly, the most straightforward way to the profit of sharing bicycle is the rental income generated by time-sharing lease. Generally speaking, the cost of sharing bicycle is calculated at 1 yuan per hour (or half an hour), except for the maintenance fee and operation fee paid in the competition of the enterprise. The cost is between 200 to 400 yuan only in terms of the bicycle cost. According to Mobike data, every bicycle that rides more than 5 times a day can make a profit. However, in fact, except for Ofo and Mobike, which are ubiquitous in major cities, it is difficult for other bicycle enterprises to popularize their bicycles. Therefore, it is extremely risky for SMEs (small and medium-sized enterprises) in sharing bicycle industry market to participate in market competition. Just in 2017, sharing bicycle industry has experienced a hot spell in the first half of the year to shuffle the industry in the second half of the year. Since the fall of 2017, sharing bicycle companies other than the two giants, four bicycle enterprises including Bluegogo Bicycle and Cool Bicycles have gone bankrupt one after another. Bluegogo Bicycle was due to the unreasonable expansion of the scale of operations, which caused the capital turnover to be ineffective, and Cool Bicycle was bankrupt due to the deposit used for financing elsewhere<sup>6</sup>.

Secondly, another seemingly reliable profit model is “grey zone”, which is widely questioned pool of deposit funds in sharing bicycle. Compulsory deposits can maximize the amount of capital precipitation provided for bicycle enterprises, and the typical “capital pool” of Internet finance has emerged. As of June 2017, according to the data released by Mobike, the number of registered users

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<sup>6</sup> Economic Reference News, Dec.12, 2017; 21st Century Economic Report, Nov. 21, 2017.

of Mobike has exceeded 100 million yuan. Based on a deposit of 299 yuan per user, the deposit is only about 30 billion yuan. If this deposit is to be operated through the bank, the annual revenue can reach several hundred million yuan. However, due to the basic rights support of bicycle use rights in sharing bicycle, it is different from traditional Internet finance, such as P2P and other means of capital absorption. Therefore, the relevant Internet financial regulation measures promulgated by the state cannot temporarily exert any binding effect on them. But the seemingly reliable profit model is only the superficial way to support the return of funds.

Sharing bicycle uses the profit model of “burning money” to cultivate users' consumption habits and promote the market to complete the shuffle. In the fierce battle to expand market share, massive bicycle launches, subsidized free rides to keep users, and iterative technology updates to meet the needs of upgraded users are constantly expanding the “burning money” process. This also means that once the capital chain is strained or even interrupted, the failure of the war will be basically declared. As a result, the bicycle company will withdraw from the competitive market.

### 2.2.3 Capital-driven sharing bicycle

The reason why it is called capital-driven is mainly because sharing bicycle absorbs a large amount of capital input and maintains the operation its business with a large amount of capital input. While, the favorable domestic financing environment has become a catalyst for the rapid development of sharing bicycle.

According to the monitoring data of the E-Commerce Research Center, since the second half of 2016, sharing bicycle brands at the head of the market have completed multiple rounds of high-funded financing in a very short time. From August 2016 to July 2017, Ofo and Mobike completed hundreds of millions of dollars in financing from round B to round E. Just in 2017, the total financing amount of sharing bicycle enterprises reached 25.8 billion yuan (Table 1). In early March 2018, Ofo obtained 866 million dollars E2-1 round of financing from Alibaba and Ant Financial. On June 1st, 2018, Hello Bicycle obtained 2.06 billion yuan in financing from Ant Financial, Su Gaoxin Ventures Group and CCB International.

**Table1** Financing record of Sharing bicycle platform in 2017

Companies	Time	Round	Financing amount	Major investor
Ofo	2017.03.01	D	450 million dollars	DST, Didi Chuxing, CITIC Private Equity Funds Management, etc.
	2017.04.22	D+	100 million yuan or more dollars	Ant Financial
	2017.07.06	E	more than 700 million dollars	Alibaba, Hony Capital, CITIC Private Equity Funds Management, etc.

Mobike	2017.01.04	D	200 million dollars	Tencent, Warburg Pincus, Ctrip, China Lodging Group, etc.
	2017.01.23	Strategic investment	100 million yuan or more dollars	Foxconn
	2017.06.16	E	more than 600 million dollars	Tencent, ICBC International, CCB International, etc.
Hello	2017.01.12	A+	undisclosed	GGV Capital, Pan Valley venture
	2017.04.17	B	100 million yuan or more	Chengwei Capital
	2017.06.30	B+	100 million yuan or more	WM Motor
Bluegogo	2017.02.24	A	400 million yuan	Black Hole Investment etc.
Qibei	2017.01.05	A	100 million yuan	Fung Investment, Muddy Investment
Unibike	2017.04.24	A	100 million yuan	investors have not disclosed

Source: E-Commerce Research Center, www.100ec.cn

As an asset-heavy enterprise, sharing bicycle does not rely on the Internet platform to realize the simple business model that matches bicycle resource with consumers. Instead, it needs to connect the production chain and supply chain of upstream bicycle supplier, strengthen the hardware and software matching, as well as online and offline maintenance and operation. Moreover, the establishment of “game rules” requires a large amount of capital investment for the immature market in each segment, for example, to solve the problem of vehicle depreciation, damage maintenance and even intelligent fixed-point parking. Not only the cost of bicycle production, but also a series of technical costs, labor costs, operating costs, research and development costs. Although sharing bicycle absorbs a lot of financing, but a lot of cost input makes it impossible to maintain long-term profitability.

### ***2.3 Reasons for problems in sharing bicycle industry***

From the above analysis, the reasons for the problems in sharing bicycle industry are summarized as follows:

Firstly, there is a lack of technological innovation with “gold content”. Sharing bicycle mainly uses cloud computing technology, mobile positioning technology and mobile payment technology, but these technologies do not have too much "gold content". Sharing bicycle initially relied mainly on model innovation, but model innovation was easily replicated and could not survive for a long time, which was the most fundamental reason of the industry's market to hit the rocks. The business model of sharing bicycle is more to adopt disorderly competition in the way of market grabbing, rather than orderly competition in the way of high-end technological innovation. The lack of competition based



on high-end technological innovation does not have long-term competitiveness and cannot occupy a place in the market economy for a long time.

Secondly, new resource input by capital-driven is highly risky. Sharing bicycle is different from the traditional sharing economy, which emphasizes the re-integration of idle resources in the case of existing economic surplus. It is the reuse of idle resources to create new revenue models with lower risk. The business model of sharing car and sharing charging treasures, which is led by sharing bicycle, integrates and shares new resources after repeated investment of new resources through external financing. The capital investment of this asset-heavy model will inevitably bring huge risks.

Thirdly, it is difficult for SMEs to maintain the operation of the Internet platform. Sharing bicycle industry as an emerging Internet industry, the new participating enterprises in the same industry are mostly SMEs. It is necessary to build a well-managed Internet platform to supervise and restrict users, in order to solve the moral hazards caused by information asymmetry and the negative effects brought by imperfect information system. However, a sound regulatory system needs to be built based on big data. SMEs cannot have mass data of consumers, so the regulatory adaptability is far less than that of large enterprises.

Fourthly, the extremely low cost of use does have behaviorally constraints. Use rights of sharing bicycle is based on the extremely low cost of use, so it will not form a better behavior constraint on consumers who use bicycles. Not just sharing bicycle, sharing economy itself is a business model developed based on trust. The level of trust determines the cost and efficiency of transactions (Dong 2016). Therefore, sharing economic enterprises need to establish a sound trust mechanism in order to achieve sustainable development (R. Botsman and Rogers 2010; Li and Tan 2018).

### **3. The feasibility of "innovation" in the sharing bicycle industry**

#### ***3.1 The feasibility of sharing bicycle's "model innovation"***

The "model innovation" of sharing bicycle mainly reflects its catering to the travel needs of consumers and solves the "last 1km problem" to the destination subway station or bus station. In theory, sharing bicycle is defined as a public travel service provided by the market means. It is a mixture of public goods<sup>7</sup>, and it is also considered as an Internet public service or public goods in some studies (Weng 2018). In fact, sharing bicycle is a quasi-public goods. The service target of sharing bicycle is the public, which solves the "last 1km" travel problem of urban residents. It has the function of extending and complementing urban public transportation and subway, and it has both public welfare and sharing. Although it has a short exclusivity during the time period used by different users, but it is not completely competitive and exclusive. Generally speaking, if the government provides quasi-public

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<sup>7</sup> Zhu Dajian , "A theoretical exploration of sharing bicycles", Newspaper of Wenhui , Apr.19, 2017. ([http://www.cssn.cn/zx/yw/201704/t20170419\\_3490626\\_1.shtml](http://www.cssn.cn/zx/yw/201704/t20170419_3490626_1.shtml))

goods or public services, the government will ensure the security order of economic and social development as the premise, which may lack certain efficiency. But if the private sector provides quasi-public goods or public services, it may be more efficient than the government to target the maximum profits of enterprises. Therefore, for quasi-public goods such as sharing bicycle, provided by private sector enterprises and properly supervised by the government, which not only improves the utilization efficiency but also maintains the industrial security order.

Therefore, the model innovation of sharing bicycle must be established with the guidance of the market and regulated by the government. Before using sharing bicycle, you need to register your personal information in advance, and bind your personal bank account to sharing bicycle application. It is also because the user's personal information can be stored by using the real name login, and the credit information such as the movement route and time can be recorded when using the bicycle. Therefore, the platform provided by sharing bicycle can be used to manage the individual bicycle utilization by the point system. If anyone violates the rules of use and will be stopped from using it, the credit system can be linked to the local government's personal information management system. In particular, the supervision of issues such as the loss of trust of sharing bicycle users can be combined with the government's citizen integrity platform (Weng 2018). In January 2018, Ofo and Mobike respectively announced the launch of the online urban traffic management platform, which will open Ofo and Mobike data information to the government. Through this platform, the regulatory authorities can obtain information on vehicle delivery data, distribution maps, riding heat maps, and user ride distance of Ofo and Mobike in a certain city, which jointly promote the refined and intelligent management of sharing bicycle with the government and scientific research institutions on the premise of ensuring users' privacy and data security<sup>8</sup>.

### ***3.2 The feasibility of sharing bicycle's " technological innovation"***

The "technological innovation" of sharing bicycle is only reflected in the use of cloud computing technology, mobile positioning technology and mobile payment technology to realize the sharing of a common bicycle among the majority of users. For example, every Mobike is equipped with a smart lock of a built-in global multi-mode positioning system (including GPS, Beidou, Glonass), which is connected to the bicycle Internet of Things network in real-time, and can quickly find bicycles, recharge, reservations, unlocking, billing through the mobile application. But these technologies are not high-tech innovations for the Internet industry and can be easily imitated and replicated. Technological innovation which is not easy to be imitated can stand out in many Internet industries and stand in an invincible position in the fierce competition with a lasting vitality.

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<sup>8</sup>Tanaka Nobuhiko "High-tech "sharing bicycle" that dominates China – an attempt to change consciousness with a mechanism –" NEC wisdom, Feb.2, 2017 (<https://wisdom.nec.com/ja/business/2017020201/index.html>).

From the perspective of collecting user data, the purpose of the massive investment and discount is to capture more users and enhance user stickiness in the sharing bicycle industry, and the ultimate goal is to collect user data. However, the data collected by this industry is certain unique, which is the reason why the sharing bicycle industry has attracted a large amount of risk financing. In fact, hundreds of millions of user registrations, real-name authentication, Alipay and WeChat import, travel time and travel track records obtained from Ofo and Mobike can be used for logistics and distribution, but the limitations of the data are obvious. Even so, these data are of great value to commercial companies and municipal systems, but whether these big data can be used to further build a new business empire depends entirely on whether Alibaba and Tencent are willing to share these consumer data with other companies, which means the importance of building a data sharing platform. Therefore, for the sharing bicycle industry, it is impossible to guarantee the irreplaceability of technological innovation without massive data. It is necessary to rely on the existing big data enterprises and rely on the abundant capital of large enterprises to maintain the operation of its existing economic model, which is an inevitable trend of competition in the emerging Internet industry. After the fierce market turmoil, with Meituan acquiring Mobike, Alibaba added investment Ofo and Hello, Didi took over Bluegogo, and the head companies of the sharing bicycle field have basically declared their failure to become a pawn in the giant ecology. The competition between the two giants of sharing bicycle has evolved into the competition of the Internet giants, and the era of independent survival of sharing bicycle enterprises has basically ended.

#### **4. The dilemma and governance path of emerging internet industry under the effect of government and market**

The development trend of sharing bicycle has the typical cyclical characteristics of the development of the Internet industry: In the early stage, a large number of homogeneous enterprises were introduced with creative investment speculation. In the middle stage, these enterprises grabbed market share by large amount of capital investment. In the late stage, the industry tended to concentrate from decentralization by the rational thinking capital. By virtue of the capital advantage accumulated in the early stage, various enterprises have constantly crowded out or occupied the market space and financing channels of other enterprises in the same industry. The final result is that with the gradual withdraw of SMEs, the pattern of monopolizing the market by several giant enterprises is formed. The rapid development of the emerging Internet industry in the early stage is closely related to the support of the government and the imitability of its own model innovation. While the fierce competition in the middle and late stages leads to the withdrawal of a large number of enterprises, which is the inevitable result of market competition.

## ***4.1 The dilemma and governance path of emerging Internet industry supported by the government***

### ***4.1.1 The dilemma of emerging Internet industry supported by the government***

The reason why sharing bicycle enterprises have sprung up in just a few years is due to the reproducibility of model innovation and the strong support of the government. The characteristic of China's economic development is that the government plays a crucial guiding role in the market economy. Sharing bicycle business as a typical representative of China's Internet innovation business, its booming development was largely due to the promotion of relevant favorable policies issued by the government in the past two years. Since 2015, the State Council has successively promulgated the "Guiding Opinions on Actively Promoting the Internet + Action" and other policies conducive to Internet entrepreneurship and innovation, and has listed the development of the Internet of Things and the sharing economy in the "13th Five-Year Plan" to encourage the integration of the Internet and traditional industries to foster innovative public service models, creating a "dual engine" for public goods and public services. It is that sharing bicycle enterprises can harvest a number of rounds of high financing from all walks of life, and the capital-driven business model can operate smoothly because of the government's support for innovation. Not only limited to the sharing bicycle industry, the government's basic policy orientation for the sharing economy is "encourage innovation, inclusiveness and prudence". By the end of 2017, China's digital economy had progressed by leaps and bounds, exceeding one-third of GDP, and China's Internet industry has jumped up and attracted the attention of the whole world. Therefore, the development of China's digital economy is closely related to the government's policy orientation to support the development of digital economy, as well as the government's support for innovation of the emerging Internet industry.

The obvious feature of the Internet industry is the shortened life cycle of enterprises with the dynamic competition through technological innovation and business model innovation in the field of Internet. In traditional industries, the average life cycle of some large companies is more than 80 years, but in the Internet industry, the life cycle of enterprises is generally shortened to about 10 years<sup>9</sup>. According to Schumpeter's innovation theory, economic innovation that changes the social outlook is a long and painful "creative destruction process", which will destroy old industries and give new industries space to rise. China's economy has always been in accordance with the "baton" of government policy rather than obeying the general rules of market economic development. The short-term benefits from the rapid development of the Internet industry far outweigh the long-term benefits from the transformation of traditional industries. Therefore, the goal of transforming and upgrading traditional industries with high-tech innovation has been overshadowed by the rapid development of the digital economy, and China has achieved leapfrog development and curve overtaking in the digital

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<sup>9</sup> Wu H. and Y. Liu, "The competitive characteristics of the Internet industry and the anti-monopoly policy" Aug.18, 2018 ( <https://baijiahao.baidu.com/s?id=1609104543751514453&wfr=spider&for=pc>).

economy. However, traditional industries such as manufacturing have concentrated resources on the "new economy" and the information industry without technological upgrading, skipping the long industrialization stage. If we fail to follow the trend and develop the digital economy simply in accordance with the government's requirements, not only will it be unfavorable to the development of traditional industries, but also the emerging Internet industry without technological innovation as a support may not survive for a long time. The life cycle of enterprises will be shorter and shorter, and the total supply and demand and the structure of supply and demand of the market will be seriously unbalanced, which will be forced to deviate from the original intention of "creative destruction" into only destruction without creation, and economic innovation may be replaced by economic collapse.

#### ***4.1.2 The governance path of emerging Internet industry supported by the government***

From the development dilemma of sharing bicycle, in order to maintain the sustainable, stable and healthy development of sharing bicycle industry, it is necessary to construct a new public service model of "market orientation, government guidance and citizen participation" through the cooperation of market, government and the citizen. It can be realized efficient and reasonable supply of public services and maximized social benefits through the multi-party cooperative governance (Guo et al. 2017). To adopt the new model of government-enterprise cooperation, it is necessary to go beyond the traditional management model with the government as a single center and separate the functions of the government as the "provider" and "producer" of public goods. The production functions of the government will gradually be transferred to the market and society, forming a multi-agent collaborative governance model of government, market and society (Ye 2012). The problem of dual failure between government and market can be solved only by forming a tripartite coordination mechanism among government, market and society (Qin and Wang 2017). Similarly, the development of the emerging Internet industry, with the guidance of government policies and the market access conditions of low-threshold, a large number of homogeneous enterprises will inevitably emerge in the early stages of the development of the emerging Internet industry. The government must strengthen supervision, standardize market order, and prevent disorderly competition. At the same time, it is also necessary to strengthen cooperation with the emerging Internet industry and establish a sound and orderly credit system, in order to regulate consumer behavior, and protect the rights of enterprises and consumers through data sharing platform.

Under the support of the government, it is necessary to take into account the transformation of traditional industries while developing emerging industries. In the wave of high-tech Innovation led by developed countries, the world is undergoing a long-term industrial transformation from machine economy to information economy and industrial economy to service economy. Even in developed countries, there are still a number of traditional industries that are booming and intermingling with emerging industries. Therefore, instead of choosing to withdraw from traditional industries or abandon

them, the technological innovation of emerging Internet industries should be applied to traditional industries, and we should use ICT (Information and Communication Technology) to rationally adjust the economic structure of traditional industries to promote transformation and upgrading. In order to prevent excessive concentration of capital and resources into emerging Internet industries, we should moderately and reasonably promote the development of emerging Internet industries.

## ***4.2 The dilemma and governance path of emerging internet industry in market competition***

### ***4.2.1 The dilemma of emerging internet industry in market competition***

From the perspective of scale economy, the economic benefits are increased by the expansion of production scale. The sharing bicycle industry does not have economies of scale, because from the production and supply chains of its upstream bicycle suppliers, there is no tendency for long-term average costs to decline as the expansion of production capacity. For the original bicycle suppliers, it is only the decrease of bicycle cost caused by the change of demand. Under the pressure of a large number of bicycles put into the market, the long-term average total cost has not decreased relative to the economic benefits. Enterprises without economies of scale will inevitably be at a disadvantage in the market competition and may not be able to survive for a long time, eventually opting to withdraw from the market or be merged.

The first-mover advantage of the digital market is obvious. Following Davidow's Law, the first opportunity gains the market, then expands rapidly under the network effect, and develops into a platform economy. The platform competition has the Matthew effect. The large enterprises that take the lead in establishing user base obtain the whole market, that is, winner-take-all, and gradually form an oligopoly pattern. This is also an important reason why sharing bicycle enterprises subsidize users at great expense in the early stage of market cultivation. In the process of development and expansion of platform competition, the main enterprises have gradually evolved into an interdependent ecosphere through interaction. In recent years, various platform enterprises have accelerated their expansion and integrated various ecological resources. In 2015, it was the climax of the merger of Internet platform enterprises, such as 58.com and Ganji.com, Didi and Kuaidi, Meituan and Dianping, Ctrip and Qunar, former competitors have joined hands one after another. In 2016, the expansion of platform enterprises continued to accelerate, conducting industrial cooperation with each other, and laying out a complete ecological value chain. In the field of e-commerce platform, there were as many as 15 mergers and acquisitions involving more than 100 billion yuan. In the platform competition, more and more enterprises have chosen to join the merger and acquisition driven by interests. Based on Matthew effect, the ultimate result of platform enterprise competition must be that small enterprises are merged by large enterprises and incorporated into the established business ecosphere of large enterprises. Similarly, the economic pattern of sharing the world between Ofo and Mobike has basically been

formed after the scuffle of sharing bicycle in recent years. New entrants are difficult to surpass them unless they have major innovations, and will eventually be merged, which is the inevitable result of market competition.

Not only is the domestic Internet market fiercely competitive, but the foreign environment is also not conducive to SMEs, and most of the SMEs are emerging Internet industries. On May 25, 2018, the EU's GDPR (General Data Protection Regulation) came into force. GDPR is the EU's legislation on personal data and privacy protection. Although it was initiated by the EU, its impact on the Internet industry, which is highly dependent on big data, must be far beyond the scope of the EU and affect the Internet industry worldwide. With the rise of super-Internet platforms such as Facebook, Google and Amazon, hundreds of millions or even billions of global users continue to gather with technology giants. In many global Internet industries, large enterprises which rely on user behavior data rather than data directly filled by users, will not be greatly affected even if the cost of compliance is increased for a while. On the contrary, SMEs may be subject to subversive blow if the cost of compliance exceeds their benefits. At the same time, compared with SMEs, large enterprises with stronger compliance and technical strength may also gain more opportunities due to the introduction of GDPR, and the industrial pattern may continue to concentrate on large enterprises.

#### ***4.2.2 The governance path of emerging internet industry in market competition***

The Internet industry has different forms, but its core part is based on the Internet platform. Since the data sharing platform determines the market share of enterprises, so a strong platform support determines whether the enterprise has strong vitality. And it is inseparable from big data and information technology whether the Internet platform is powerful. Although big data has become a key factor of production in the information society, whoever has mastered the data means mastering the market. In the domestic Internet industry market, there are only a handful of enterprises that really master big data. However, without strong information technology as a support, it cannot make the role of big data play incisively and vividly even with big data. For example, in modern information technology, if there is a set of highly intelligent algorithm system to support with accurate algorithm, it can win the first place in the competition of Internet emerging enterprises in a short time. The popular short video APP Tik Tok is based on today's headline recommendation algorithm. The logical mechanism of its algorithm is summarized as intelligent distribution, superposition recommendation and heat weighting. With the precise mechanism of combining big data algorithm and artificial operation, Tik Tok can more accurately cater to consumer demand, which has been sought by the public and has gained more market share in the We-Media entertainment market. But the algorithm depends heavily on the quality of the data, and it is impossible to conclude that a powerful algorithm can be invincible forever. Therefore, the combination of big data and information technology is a necessary condition for the emerging Internet industry to have strong vitality.

From the development trend of the sharing bicycle industry, it can be seen that the emerging Internet industry is seizing market opportunities, catering to the ever-evolving needs of consumers, and thriving under the drive of innovation. With the continuous influx of emerging Internet enterprises in the same industry, fierce market competition is inevitable. And even if the emerging Internet industry can win in the same industry and become a giant in the industry, it will eventually be merged into the ecosphere of large enterprises and become a node in the industrial chain of large enterprises. The oligopoly status of large Internet enterprises with big data will not be easily shaken. But it is not absolute. If the emerging Internet industry can have both a steady flow of big data resources and a strong information technology, it may continue to seize the market share of existing large Internet enterprises. In the long run, it may eventually become an Internet enterprise of the same scale as the three giants of BAT (Baidu, Alibaba and Tencent), or it may grow into a large Internet enterprise instead of BAT.

## **5. Conclusions**

From the perspective of the development trend of sharing bicycle, while bringing convenience to economic and social activities, it cannot be ignored the negative externalities by itself. There are a series of problems in the sharing bicycle industry caused by the lack of "gold content" technological innovation model, high-risk investment in new resources, platform management without big data advantages, and non-binding behavior. For the emerging Internet industry, the core competitiveness is "innovation". Throughout the development model of sharing bicycle, it is not feasible either from the perspective of "model innovation" or "technological innovation". On the one hand, the so-called "model innovation" is easy to be imitated and duplicated, and the market confusion has been caused by the influx of a large number of homogeneous enterprises. And sharing bicycles belong to quasi-public goods, although it is more efficiently provided by enterprises, but it is needed to ensure the safety of its industrial order supervised by the government. On the other hand, the so-called "technological innovation" belongs to the innovation without high-tech content. There is neither complete big data, nor precise algorithm, and it is impossible to win in the fierce industrial competition. Even if the two giants who win in the competition in the sharing bicycle industry cannot fight alone and must ultimately rely on the large Internet enterprises to support their sustainable development.

As one of the representatives of the emerging Internet industry, many problems of Sharing bicycle in the development process are enough to make us ponder. It is necessary to further consider the dilemma and governance path of the emerging Internet industry.

Firstly, whether the emerging Internet industry can continuously promote economic development under the support of the government. Although, the emerging Internet industry has been constantly innovating with the strong support of the government, injecting fresh blood into China's economic



development. However, the emerging Internet industry, which is low technology and based on model innovation, blindly follows the policy guidance and concentrates resources on emerging industries, resulting in excessive capital investment and unnecessary waste of resources. At the same time, the transformation of traditional industries has been neglected. Therefore, it is not only necessary for the government and the emerging Internet industry to jointly establish a data sharing platform to achieve industry regulation in order to maintain the market order, but also to combine information technology innovation with traditional industries to achieve the transformation and upgrading of traditional industries.

Secondly, whether the emerging Internet industry can continue to develop for a long time in the market competition. "The law of the jungle, winner-take-all" has become the inevitable result of market competition in the emerging Internet industry. Enterprises without economies of scale will definitely withdraw from the market or be merged. Big data and information technology are the key to win the competition because the emerging Internet industry relies on the Internet platform to compete. For the emerging Internet industry, not only need to have large data, but also need to rely on powerful information technology, it is possible to break the oligopolistic equilibrium pattern of the three giants of BAT and change its fate of being merged into the large enterprises ecosphere, finally to win a place in the Internet market competition.

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