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Lahti University of Applied Sciences

An Internet-based short-distance travel solution in China

Case: Mobike Technology Co, Ltd

LAHTI UNIVERSITY OF APPLIED SCIENCES
Degree programme in Business Information Technology
Bachelor's Thesis
Autumn 2017
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38 pages, 3 pages of appendices

Autumn 2017

ABSTRACT

This thesis aims to study the growth of shared bicycles in China, explore the related profit model and reasons for the current development scale, and summarize the application of the related business model to provide a reference for other mobile e-commerce service industries. In addition, the aim is to study the problems existing of shared bicycles, and to suggest solutions.

The main research question of this paper is the following: What are the impacts of an internet-based short-distance travel solution in China?

This thesis focuses on a case company called Mobike Technology Co, Ltd. Mobike is an innovative bike-share company whose business idea brings social, economic and environmental benefits.

Finally, the result will show the impacts of internet-based short-distance travel solution in China.

Keywords: Mobike, green benefit, credit system, model innovation, sharing economy

TERMS

Internet+ Internet plus

The concept refers to the application of Internet and other information technologies in traditional industries. The mobile Internet, cloud computing, big data or Internet of Things can be added into new industries and business development in China.

PPP Publie-private partnership

The concept refers to the government cooperate with the social capital and private companies. It is a project operation mode in the public infrastructure. In this mode, private enterprises and private capital are encouraged to cooperate with the government to participate in the construction of public infrastructure.

Last mile problem

In this paper, this refers to the defect of the public transport terminal. In other words, the areas and gaps are not covered by public transport. This is a pain point for people’s short-distance trips.

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1 INTRODUCTION

1.1 Background

Shared bicycles are provided by an enterprise to the public with the Internet control function of the bike. It helps to improve the convenience of public travel. From the functional point of view, sharing bicycles are low-carbon public transport. It is conducive to "bus city" construction and haze treatment in China. As a combination of Internet technology and traditional bicycles formed by the emerging transport, shared bicycles to create a "Internet +" new format. Sharing bicycles is now popularized in the city, and it causes a greater response from public. People have different attitudes towards bike-sharing, some people support, some people against. (Wang 2017; translated from Chinese by the author.)

In 2014, the first batch of shared bicycles was put into use at the Peking University campus, and the founders designed to facilitate the travel of faculty and students on campus. Because of its ability to meet the needs of university campuses, it is welcomed by faculty and students. The number of bicycles and the number of colleges with shared bicycles are growing rapidly. After the successful attempt on campus, shared bicycle enterprises are looking to the cities for their business. The shared bicycles are available in more than 30 cities such as Guangzhou, Beijing, Shanghai, Shenzhen and Hangzhou, adding a new way of transportation in these cities. (Wang 2017.)

1.2 Thesis structure

The thesis is divided into five main sections, the first section is introduction, the second section is research design, the third section includes the following: The background of Internet-based short-distance travel solution, current situation, impacts, existing problems, suggestion

and countermeasures. The fourth section discusses Mobike as a case study. The last section is conclusion.

2 RESEARCH DESIGN

2.1 Objective of the research and research question

This paper introduces an Internet-based short-distance travel solution in China, and the objective of the paper is to analyse the impacts and problems of Chinese dock-less bike-sharing solution and provide some countermeasures. The data is based on the background information analysis of Internet-based short-distance travel solution and the interview of some Mobike users. In addition, the main research question in this paper is “what are the impacts of an Internet-based short-distance travel solution in China?”

2.2 Research method

The author ~~is~~ aims to find out the impacts and problems of a Chinese Internet-based short-distance travel solution. The author will apply a case study method to research the topic. The case study is Mobike, a Chinese dock-less bike-sharing solution. A case study offers a subject to study a subject, for example, a company, and preferable involving a deep understanding through multiple types of data sources (Sauro 2015).

In addition, the author will use an individual interview as a qualitative data collection method to collect and analyze data. After the interview, the results of interview will be reported in the appendix of the thesis.

Moreover, the deductive method is selected as the research method. Because the research question is “What are the impacts of Internet-based short-distance travel solution in China?”. It means the relevant data need to be collected to verify the theory. In order to solve research question, this paper introduced the current situation and existing problems of the Internet-based short-distance travel solution in China, and the Mobike’s case is also analyzed to determine the possible impacts. Furthermore, the interview also collected relevant data to prove the theory.

2.3 Data collection and analysis: interview

Since 2016, the bike-sharing solution has gradually entered the life of Chinese people, while the bike-sharing solution brings more surprises to short-distance travel, it has also brought new challenges to the urban operation and social governance. In order to research its impacts on people's daily life, the author selected five Mobike users for an interview. The motivation for the interview was to observe the user's view on the effects and new challenges caused by the Internet-based short-distance travel solution. The interview details and results can be found in the appendix.

According to the research report from IResearch, the author learned about typical personas of bike-sharing users. The Figure 1 shows that the main users of bike-sharing are middle-aged and young men who have middle and upper incomes and pursue a healthy lifestyle (IResearch 2017).

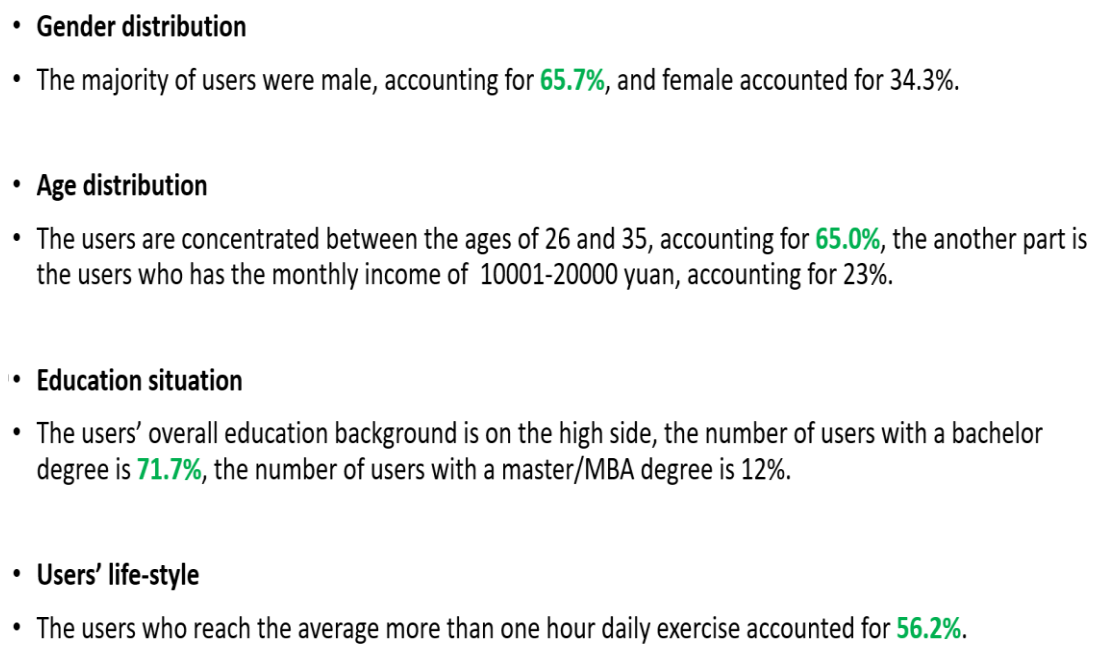


Figure 1: Personas of bike-sharing users. (IResearch 2017.)

Therefore, the author selected five interviewees who fit this kind of personas for interview. They are three college students, a white-collar

worker and a fitness instructor respectively. And they all have experience in using Mobike.

From the table 1, the author drew the following conclusion. The most interviewees believe that Mobike app is super simple and practical. The main impact was improving and promoting the bicycle traffic, and bike-sharing service provided great convenience for people, it not only saves user's time, but also promotes a green and healthy lifestyle for people's short-distance travel. However, when asked the third question, "What problems or new challenges do you think remain with bike-sharing service?", the interviewees think more and more colorful bicycles caused a massive problem. The cities may look like a mess, because the bicycles are everywhere. In addition, artificial damage and lack of care for bicycles are also problems. And then, in some important holidays, a large number of bikes piled up and parked on the side of the road in some places could cause traffic jams. Last but not least, the bike parking spot still need to be planed, the lack of designated parking areas for the bikes is a problem need to be solve by government. Same as for cars, when there is no parking spot, then everybody parks as they can.

2.4 Research limitations

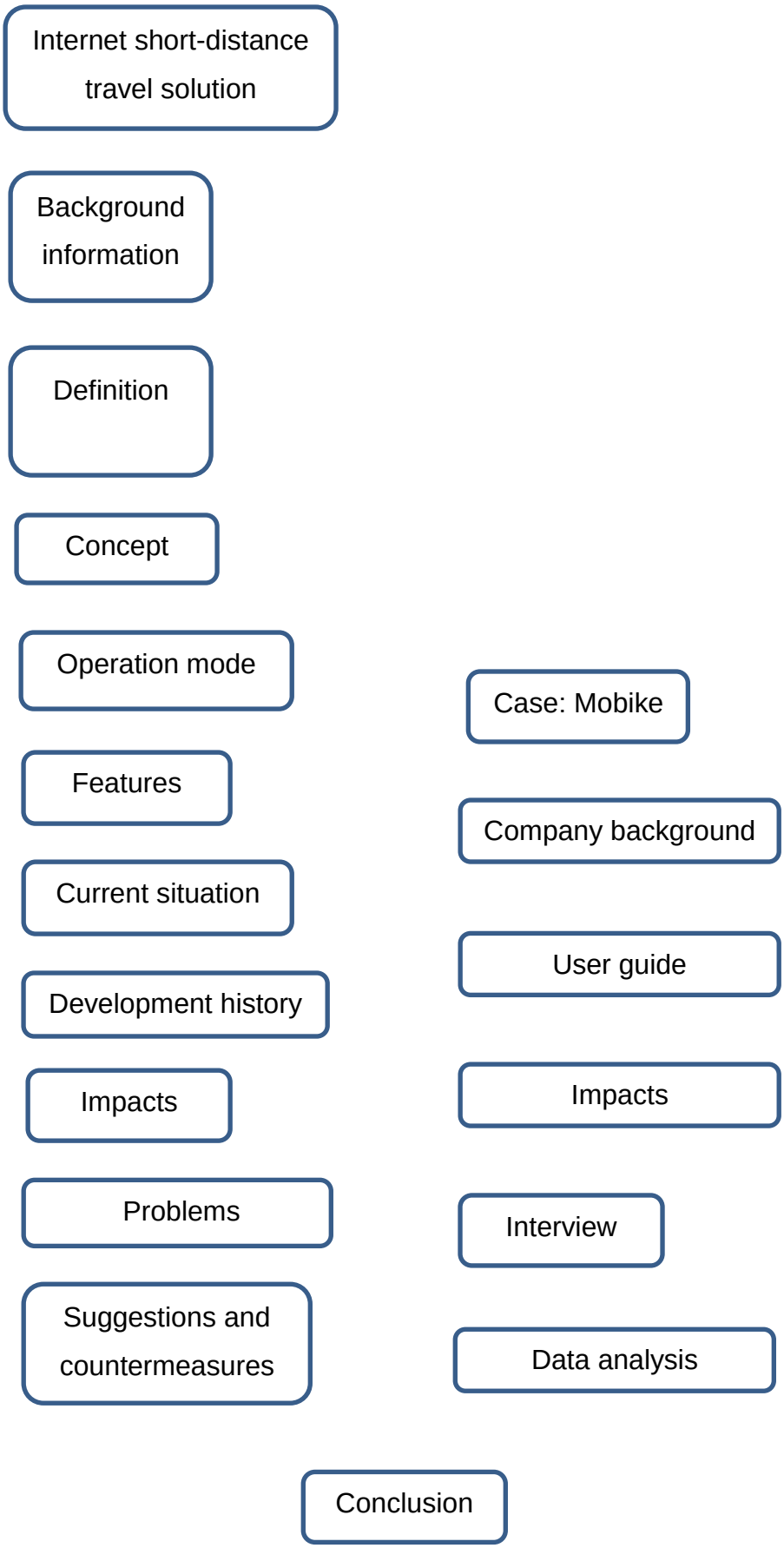
The author will pay more attention to reliability and validity to reduce the possibility of wrong answers appearing. One way to confirm reliability is to record all interviews which ascertain the availability of repetition.

The case Mobike is the Chinese dock-less bike-sharing solution in China. The data from bike-sharing industry is based on the Mobike official website, relevant news report, previous research results and relevant China bike-sharing industry report form IResearch.

2.5 Research Framework

This paper used perspective and explanation theoretical framework. Perspective theoretical framework is a description system, it is a description of the “object of study”, including the research object with the concept of definition, classification and characteristics. Explanation theoretical framework appears after the results of the study, is the interpretation of research findings and research results. The author will use a variety of existing theories to explain the findings, as long as the logic of its rationality.

According to the topic of this paper, there are six main chapters for the research, the first chapter is the background of Internet-based short-distance travel solution, the second chapter is current situation, the third chapter is the impacts, the fourth chapter is the existing problems, the fifth chapter is the suggestion and countermeasures. The last chapter is Mobike’s case study. From the figure one below, it is clear to see that the whole research framework map.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3 THEORETICAL FRAMEWORK

In this chapter, mainly studies the impact of internet-based short-distance travel solution on China, and puts forward some suggestions for improvement.

3.1 Internet-based short-distance travel solution

(1) The definition: Internet-based short-distance travel solution

Internet-based short-distance travel solution located in the short-distance bike business, for short-distance travel needs of the crowd to provide transport services, it is the solutions of the “last mile” problem. (Hao 2017.)

According to the definition from the Mobike official website, it is a bike sharing service to fulfil short travels in the city, you can use this service anytime and park the sharing bicycle in any legal parking destination. In addition, it combines innovation and today’s IoT (Internet of Things) technology. It is green, reduces traffic congestion and pollution to improve the quality of city life. (Mobike 2017.)

(2) The concept: Internet-based short-distance travel solution

The idea of Internet-based short-distance travel solution is to provide an affordable shared transportation for convenient short-distance travels in the city, simultaneous reduce traffic congestion, and the carbon footprint of the city. Finally, try the best to improve city life’s quality. (Mobike 2017.)

3.2 Operation mode

The idea of sharing bicycles has been for a long time, only in China, now has more than 20 provinces opened the city public bicycle service. As currently envisaged, there are three main innovative management modes: Intelligent leasing model, sharing economic model, and the business model of “Internet+” respectively.

(a)Intelligent leasing model

Intelligent leasing model means that each shared bicycle is integrated with GPS and communication modules, the user can locate, book and use nearby shared bicycle with the smartphone application. After riding to the destination, there is no need to park on a fixed parking destination, users can park near the roadside in the appropriate area, and then, users lock the bicycle manually, the mobile app will automatic achieve electronic payment settlement.

In the past, because the existence of the fixed parking area of bicycle, the construction of public bicycles was a long process of consuming a lot of resources. But now, the innovative mode of lntelligent leasing does not require the government to invest in land and electricity resources, greatly reducing the operating and maintenance costs. In addition, this business model can meet the scattered and uncertain riding needs, near to take and return, it large improve the convenience of cycling and utilization, changing the previous embarrassing situation of the public bicycle project, because the public bicycle project has invested billions of dollars before, but has not improved urban transport. (Hao 2017.)

(b)Sharing economic model

The operation of the shared bicycle spread with “sharing economic” idea, that is “people need the value of the product, not the product itself”. But the pattern of sharing is different from “Uber”. Uber pay more attention to operation rather than assets, however, shared bicycle company, for instance, Mobike company foucses on assets more than operation. They designed and manufactured their own bike. Uber is a typical “Internet+” enterprise, Mobike more like a service manufacturing enterprise. It is manufacturing as the core, combined with Internet technology. Relative to the traditional shared economic model, this new type of self-operation mode is more conducive to the standardization of products management. (Hao 2017.)

(c) “Internet+” business model

The shared bicycle is designed to graft the mobile Internet technology to the traditional public bicycle rental business, and its entire use flow is achieved through the Internet. Relying on the Internet infrastructure and GPS positioning function, users can find near the bike in real-time, scanning QR (Quick Response) code for renting and automatically billing. From finding and booking a bike to using and locking the bike, the whole process can be achieved in an App, which is fitting the habits of people in the mobile Internet era. It reduces the use of the threshold and provides a convenient for the users' short-distance travel.

3.3 The features: Internet-based short-distance travel solution

Shared bicycle as part of China's urban traffic is now in line with the "resource conservation", "environment-friendly" and "low-carbon" travel concept, it has the following features:

(1) Pollution-free, low-carbon green way of short-distance travel.

Bicycle as a completely no energy consumption of the vehicle, there is no air pollution and noise pollution, it can provide a convenient way of green travel for students and urban residents. Meanwhile, cycling belongs to a kind of sport, it is beneficial to the user's physical exercise.

(2) "Internet+" operation model, the solution of "the last mile problem".

Mobile Internet technology combined with traditional public bicycle rental business, the entire use of process is achieved through the Internet. It can solve the problem of short-distance travel for urban residents.

(3) Convenient and efficient way of using traffic resources.

It is easy to operate, and it has high security. In the meantime, it can serve as the auxiliary mode of urban transportation, in addition, it can

use the limited urban traffic resources, improve the efficiency of urban transport operations, ease the city congestion situation.

3.4 Current situation of internet-based short-distance travel solution in China

Nowadays, the city's air pollution is becoming increasingly serious, foggy weather increased year by year, the environmental situation is not optimistic, even in the subway, bus and other traffic network coverage is increasingly prefect first-tier cities, there is still "last mile" problem. At this point, the emergence of shared bicycles has effectively improved the environment and traffic problems, and thus successfully enhance the city image. The Figure 2 below shows that the total distance of the cycling in China is more than 2.5 billion kilometres. That represents a reduction of 540000 tonnes of carbon emissions, it equal to a reduction of the carbon emissions of 170000 cars for one year, or it is equivalent to 30 million trees planted, or equivalent to a reduction of 4.5 billion micrograms of PM2.5. Therefore, the author believe that bike-sharing service has effectively reduced urban carbon emissions and helps with haze treatment.

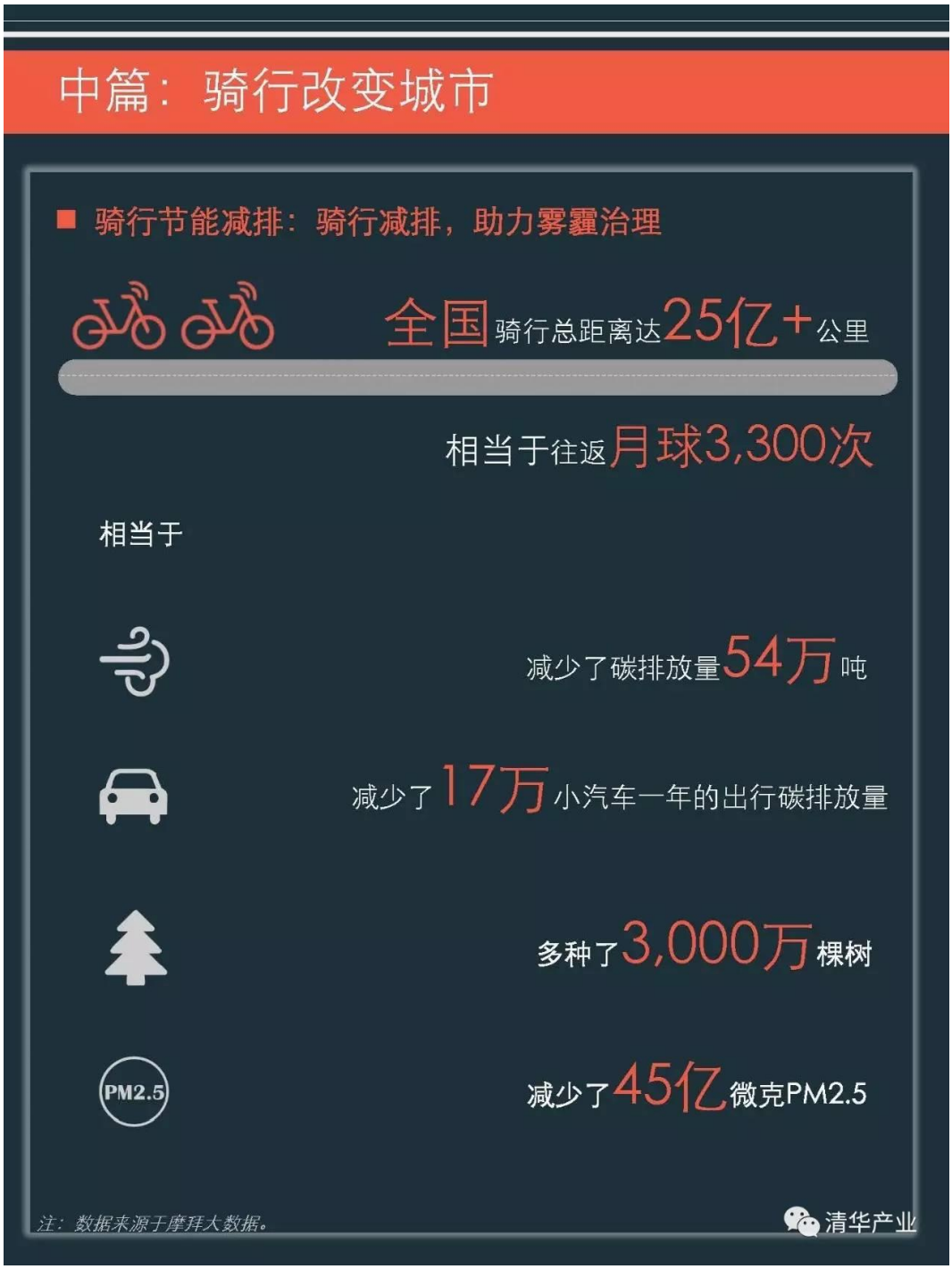

Figure 2: cycling reduces carbon emissions and helps with haze treatment (Tsinghua Industry 2017.)

Firstly, the bike travel as a green way of transport, its environment benefits are obvious, according to the JCDecaux company's relavant data (JCDecaux reference report 2012.) show that bicycles instead of car travel, per kilometre distance can reduce the average 200g CO2 emissions. Secondly, the shared bicycle as an effective supplement in the

increasingly perfect urban traffic network, its flexible leasing model which can provide services for 1-3 kilometers of short trips. Coordinate with the existing public transport system, froming a “point-to-point” transport service to improve the accessibility of existing public transport systems, and it helps to relieve urban traffic congestion. (Zhang&Wu 2017.)

According to “2016 China shared bicycle market research report” (Bigdata website 2017.) relevant data show that by the end of 2016, the number of users has reached 18.684 million in China shared bicycle market, the report is expected after a few years, the number of users will continue to grow substantially, by the end of 2019, the number of users will reach 110 million users scale in China. Mainly the 25-35 years old office workers and students under the age of 25 years old are widely welcomed. As the current fashion travel mode, because the shared bicycles have the use of convenient, environmental friendly concept, affordable, easily share features, it brings a very high user experience for the user. (Zhang&Wu 2017.)

“Idle resources, shared network platform, everyone involved” is the three basic elements of the shared economy (Zhang&Wu 2017). As a typical case of shared economy, the emergence of shared bicycles has solved the problem of government traffic congestion and environmental pollution, in addition, as well as creating commercial value for its operators.

IResearch’s relavant data indicate that the revenue of China’s shared cycling industry reached 3875 million Yuan in Q2 2017, increase 313.5% from previous quarter, which showed that the shared cycling industry come in a period of fast growing. See Figure 3. There are several reasons why shared bicycle industries are fast growing. (iResearch 2017.)

(1) Shared cycling companies launched a series of promotional activities, particularly free riding activities, it through the increase in new users and the bicycle riding frequency to collect the loyalty of the user. (IResearch 2017.)

(2) People can use bicycle in more scenarios. For example, going to work by bike, buy things by bike and go out by bike on the weekend. (iResearch 2017.)

(3) Handiness and efficient travel mode won the favour of the society and gained the government's encouragement and support.

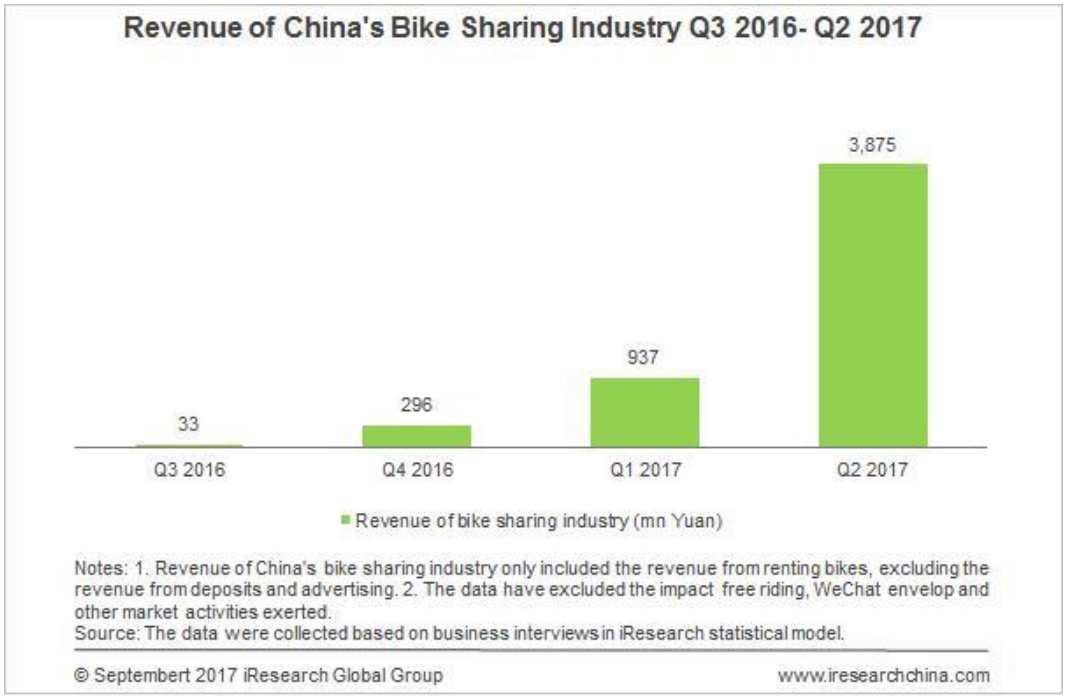

Figure 3: Revenue of China's Bike Sharing Industry Q3 2016-Q2 2017 (IResearch 2017.)

According to the data acquired from mUserTracker, shared bicycle companies can be divided into three groups in terms of monthly unique devices (MUD). Mobike and ofo are leading in the first-tier group. The second-tier group was formed by bluegogo, coolqi, hellobike, and other shared bicycle companies. In addition, the second-tier group ranked first by number of bikes and market share in some cities. And then, companies with MUD of less than one million in the third-tier group. See Figure 4. (IResearch 2017.)

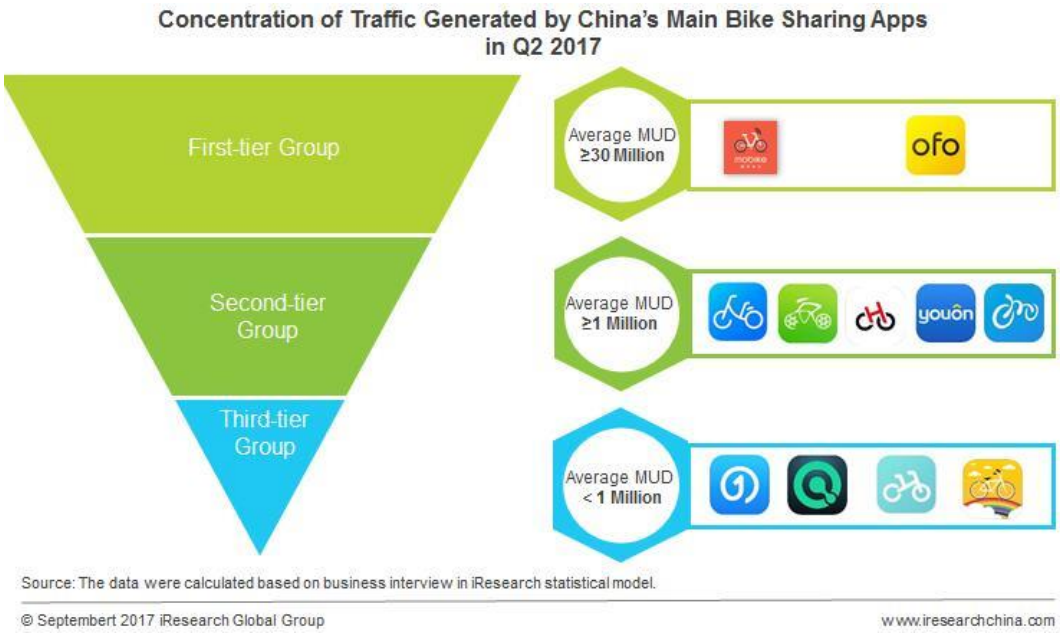

Figure 4: Concentration of Traffic Generated by China's Main Bike Sharing Apps in Q2 2017 (IResearch 2017.)

3.5 PEST analysis and the impacts on different stakeholders

PEST model is a kind of strategic analysis method to improve the adaptability of enterprise's internal and external environment. The PEST analysis method can not only objectively evaluate the external environment of shared bicycle development, but also can find out the shortcomings. It can offer the theoretical support for optimizing the allocation of funds and resources. PEST model includes four aspects: Political environment, Economic environment, Social environment and Technological environment.

(1) Political environment analysis.

Nowadays, with the increase in urban private cars, traffic congestion, environment pollution and other issues more and more serious, how to ease the urban traffic pressure has become a headache for each city's government. Previously, the government has also introduced measures to solve the problem of urban travel, such as restriction on foreign vehicles license, the even-odd license plate method. But the effect is

not obvious, it cannot solve the problem from the root causes. Now more and more people like the green, healthy travel model, the government is encouraged by this model, and the government is also more willing to see Internet companies like Mobike and OFO contribute to the development of cities. In recent years, China vigorously promote the PPP (Public-Private Partnership) model, the supporting policies were released in succession, this provides a good environment for the development of shared bicycle. However, due to the number of shared bicycles “blowout” growth, so that the government departments are relatively deficient in the strength and input of their management. (Leng 2017.)

(2) Economic environment analysis.

According to the “China Internet Development Statistics Report” (CNNIC website 2017.) shows that by the end of 2015, the number of Internet users in China has reached 688 million, the proportion of mobile Internet users over 90%, mobile Internet create a new way of life for the public. For the average user, from the economic point of view, they are more likely to choose shared cycling apps to achieve the last 1-5 km travel rather than subway, bus, taxi and so on. Because it can save a lot money for users. (Leng 2017.)

(3) Social environment analysis.

At present, the society is increasingly receptive to innovative things. After experiencing the “haze”, Chinese people’s environmental protection and health awareness has continued to be strengthened. Furthermore, because the traffic situation of first and second-tier cities has become increasingly congested, this type of environmental protection, efficient, flexible and healthy short-distance travel way was noticed once again, shared bicycle has become a popular short-distance green travel tool.

To some extent, the emergence of shared bicycles awakened the return of Chinese bicycles traditional culture. Bicycle are memories of

childhood for a lot of people, simple and beautiful. In addition, the shared bicycle also advocates a national fitness concept, riding a bicycle is not only to meet the needs of travel, it is a healthy way of exercise. (Leng 2017.)

However, the city capacity is limited, there could be excess bikes in some cities. It is not good for market management, because oversupply of shared bicycles. At the same time, there are a lot of problems during the use of shared bicycle, for example, random stop, disorderly put, artificial damage, bicycle loss and so on. These uncivilized behaviours greatly reduce the efficiency of the use of shared bicycle.

(4) Technological environment analysis.

The development of Internet technology and the popularization of smart phones provide technical support for promoting shared bicycle. It also brings new market opportunities to many enterprises. Specific technology depends mainly on the following:

(1) smart phone technology bonus: the emergence of smart phones to improve people's way of life from shopping to travel, it also provides a great convenience for user.

(2) Shared bicycle combined the Internet of things to used in the city's traffic upgrades, large-scale realization of the connection between people and objects, it created a new model of interoperability between people and things.

(3) High-tech intelligent unlock, accurate GPS positioning technology has promoted the development of shared bicycle industry, Internet mobile payment system also helped to build a profit model for the shared bicycle Apps. (Leng 2017.)

1. The impacts on daily life

From the beginning of 2016, shared bicycles gradually enter our lives, as a result of the improvement of living standards, people pay more and more attention to material life and health. The concept of healthy living and green travel for sharing bicycles has received positive responses from users. Whether in work of recreation, cycling is included in our daily life. Since the advent of shared bicycles, as time goes by, it's changing lifestyles. For office workers, shared cycling improved the travel efficiency of commuting, commuting time is significantly shorter. Whether by subway or bus, people need to spend some time on the walk and traffic jam.

Now the whole point of view, it is a convenient stage, it has played a great improvement for our short-distance travel. It improved the traffic congestion caused by the inconvenience. In addition, urban follow-up projects will build some separate bike lanes in the long-term planning, the entire traffic system pressure will be improved very well. However, when a large number of bicycles pour into the crowed cities, then the problem will naturally begin to appear. Now many media outlets have reported problems of disorderly stop and deliberately damaged, of course, faced of these problems, some bicycle delivery enterprises are also deeply helpless. This has also become a major problem in urban management.

2. The impacts on government

Because China is now vigorously promoting the PPP model, the shared bicycle companies and local governments has an in-depth cooperation, it not only become a supplement to the government bicycle rental, better travel for the public, but also can get the government support of supervision and other aspects. It promotes the healthy development of bicycle rental market of China. And the government can also use the mobile short-distance travel data of companies to understand the actual demand of bike, so that scientific and effective adjustment of the number and location of shared bicycles. At the same time, through cooperation can

further realize commercial management, improve the efficiency of public resources.

3. The impacts on society

Firstly, shared bicycles can significantly improve urban movement efficiency. However, some people say that the popularization of bicycles is a step backward of traffic, because the car is more advanced means of transport. Author thought that this is very nonsense. Aircraft is faster, but we still need high-speed rail, subway is more convenient, but we still have the bus. Bicycles are like capillaries that complement other means of transport.

Secondly, shared bicycles can enhance the efficiency of people's life and work, whether it is life or work, it can significantly reduce the time in transit.

Thirdly, shared bicycle is a low-carbon green way of traveling. It can contribute to reducing urban environmental pollution and carbon emissions. It can reduce traffic congestion and encourage people to do more exercise, which is conducive to physical and mental health. These influences will help transform our cities into the "healthy cities".

Fourthly, shared bicycle can bring the development of Internet of things, for instance, Mobike is working with Huawei, Qualcomm and other operators to explore the Internet of things, especially NB-IoT and other new things networking technology, and then promote the development of the relevant industries.

Fifthly, shared bicycle created more jobs in the society, although it affects the interests of taxi companies and ride-hailing Apps, but it brings new positions such as shared cycling platform operators, maintenance personnel, shared cycling "hunters" and so on.

In addition, shared bicycles bring business model innovation, more and more companies are following the business model of shared bicycle, whatever it is shared power bank or shared umbrellas, they are all inspired by the shared cycling business model.

Last but not least, shared bicycle enhanced China's innovative image, high-speed rail, online shopping, mobile payment, shared bicycles, China's "new four inventions" in the eyes of foreigners, quietly changing people's way of life, they are all related to science and technology, indicating that China's scientific and technological innovation has greatly improved the quality of people's life. China is entering a new era of innovation, China has invested a lot of money into innovation, and thus the birth of many innovative achivements, so that people have more choices to improve the quality of life.

3.6 Problems concerning bike-sharing

Although shared bicycle brings great convenience to people, however, due to bicycle attributes, the quality of citizenship, economic system and other reasons, there are a lot of problems still need to be solved.

(1) The costs of launching bicycles to the market is high, high positioning equipment costs and maintenance costs.

As a shared bicycle company, its cost mainly includes two aspects: running costs and maintenance costs. And running costs include bicycle manufacturing and GPS positioning equipment, a bicycle manufacturing costs ranging from 300-500yuan, GPS positioning equipment and related devices up to 2000 yuan or more. In addition, from maintenance point of view, the company needs to regularly check and repair the bicycle which will undoubtedly bring a huge human and material costs. (Xu 2017.)

(2) Profit model difficultly and low returns.

Shared bicycle is the new normal of sharing economy, due to the nature of the independent operation of enterprises, this determines that the ultimate goal of enterprise is to maximize its profit. However, a lot of money is needed for the initial launching bicycles to the market and maintenance repair. According to Tongji University, Institute of Sustainable Development and Management, Institute director Zhu

Dajian estimated that rent as a source of income, the cost of 3000 yuan is expected to recover within two years. The sustainability of profit growth in shared bicycle market has become a problem worth considering for enterprises. (Xu 2017.)

(3) The artificial damage of the shared bicycle is serious, integrity system is not perfect.

As the shared bicycle can be freely used through the mobile terminal Apps, and the lack of necessary user detection and punishment mechanism, the bicycle of malicious damage, the uncivilised phenomenon of occupying and reselling bicycles has also occurred. In today's society, the integrity of the mechanism is missing, the overall quality of citizens still need to be improved. (Xu 2017.)

(4) Disorderly parking occupies the city public roads and space, urban management and traffic order problems need to be solved urgently.

In some cities with high traffic pressure, limited public roads and traffic resources have been difficult to meet the travel needs of urban residents, and then, the new problem of the urban public roads and space occupied by the disordered parking of shared bicycles bring a great challenge to the government departments. (Xu 2017.)

(5) Shared bicycles caused serious waste of resources.

Shared bicycles have been widely welcomed by the public since it was put on the market. However, because of poor supervision, the user does not care, man-made intentional damage and so on, this has led to a huge number of shared bicycle early damage and premature scrapping. According to the China Bicycle Association official website reported that in 2016, nearly 20 brands launched about 2 million shared bicycles, and it is expected to launch 20 million shared bicycles in 2017. When these bikes are scrapped, nearly 200000 tons of scrap metal will be produced, that's equivalent to the weight of five aircraft carrier structural steel. Shared bicycle damage rate is high, and it has a

high maintenance costs, it has led many shared bicycle companies to eliminate bad bicycles for purchasing new bicycles. The recovery rate of scrapped bicycles is low, this leads to the consumption of a large amount of resources in the use of shared bicycles, and these scrap steel has not been effectively recycled, resulting in a serious waste of resources. (Huang 2017.)

3.7 Suggestions on solving the problems for different stakeholders

Shared bicycle as an emerging industry in China's market economy, it has great development prospect. According to the above problems, it is necessary to take various measures, combined with the actual development situation of shared bicycle industry. This paper will put forward suggestions respectively from government, enterprises and public.

1. From the government perspective

(1) Establish and improve relevant policies and regulations

As the government with executive power, it has the responsibility to guide the healthy and orderly development of shared bicycle enterprises. Government should actively introduce the relevant laws and regulation to regulate and guide the orderly development of shared bicycle enterprises. In addition, the relevant departments should introduce the corresponding shared bicycle management methods, the relevant department need to regulate bicycle parking, management and operation order, furthermore, the government also need to resolve the contradiction between the disordered parking and the urban traffic management.

(2) Improve the infrastructure construction, enhance the city management capacity.

The government should actively enhance the city's comprehensive management capacity, strengthen the infrastructure construction, and listen to the suggestions and aspirations of the society. In addition, the

government and enterprises should carry out the construction of the credit system, improve the awareness of the users' integrity and eliminate the bad society vogue. At the same time, it is necessary to make a full use of integrity construction and dishonesty punishment mechanism to punish user's bad behaviour. Moreover, enterprises need to improve the monitoring system of parking areas and record the bad behaviours.

2. From the enterprises perspective

(1) The maintenance of operating mechanism need to be improved

Aim at the cost and maintenance fee of shared bicycles, on the one hand, the enterprises can improve the production efficiency of the assembly line and combine with the relevant bicycle manufacturing plant to reduce the manufacturing cost of the single bicycle. On the other hand, the design, scientific and technological content of bicycle need to be strengthened, because improving the quality of bicycle can reduce the number of bicycle repair and maintenance costs. In addition, the bicycle operation and supervision system should be well-established, and the offline maintenance efficiency need to be improved for reducing operation costs.

(2) A diversified profit model need to be opened

The rental income is the main source of shared bicycle company profit, other profit model also should be developed actively at the same time, on the one hand, the advertisement on the bicycle should be fully utilized, it has a huge potential to make profit for company. The advertisement can be placed on a prominent position of the bicycle. In addition, the concentrated parking area can also put the auction advertisement. On the other hand, under the supervision of third parties, users' account deposit can be used reasonably, the best efficiency of the fund usage can be raised to bring better economic benefit.

(3) Cooperate with government departments in PPP project to achieve win-win cooperation

Shared bicycle companies used their own private capital enter into the field of public transport, trying to use technology, innovation and market forces to solve the development of urban public bicycle problems. But under the private supply mode, as autonomous and self-financing enterprises, the risk is too high. In contrast, the model of PPP can allow enterprise to obtain preferential policies and reduce some risks. Shared bicycle companies should work closely with the relevant government departments of the city, proper planning of the parking area of the bicycle and work together to strengthen the offline management of shared bicycle. Moreover, conscientiously implement relevant documents issued by the government, under the guidance of government norms to promote the healthy development of enterprises.

(4) Enterprises should strengthen their own management

The relevant systems and measures should be worked out and be perfected. The operation and maintenance management capabilities need to be enhanced, and an effective complaints feedback mechanism need to be established for better serving customers and improving service levels. In addition, the technical input should be strengthened, actively carry out technological innovation to improve the working life of the bicycle, recycling scrap bicycles for reasonable re-use. Lastly, the establishment of a credit system to regulate user behaviour, the user who intentionally damage the bicycle should be blacklisted.

3. From the society and public perspective

Citizens' own behaviour need to be regulated. Shared bicycle brings a green and healthy way to travel for public and society. Therefore, the public should consciously protect this new thing, the act of intentionally damaging a bicycle should be monitored and criticized. In addition, users should obey the traffic rules when using a shared bicycle. Disorderly

parking, private possession and other uncivilized behaviours need to be avoided. As a social citizen, each of us should enhance their own quality to protect every single shared bicycle that’s around us. Only the public and the whole society of China realized the importance of Internet short-distance travel solution, then, citizens’ own behaviour can be improved.

4 MOBIKE

In this chapter, the writer will introduce and analyse the Mobike, as the Chinese dock-less bike-sharing company. This chapter includes the company background, operation mode of the Mobike, impacts of the Mobike and the comparison with other competitors.

4.1 Company background

Mobike created by Beijing Mobike Technology Co., Ltd. It is the Chinese dock-less bike-sharing company. It was founded in 2015. The company is headquartered in Beijing, China. It is the largest bicycle operator in the world, and in December 2016, Shanghai became a largest bike-sharing city in the world. The initiator of Mobike is Hu Weiwei. Mobike is the provider of bicycle sharing platform in China designed to allow users to locate nearby bicycles. Its bicycles are equipped with smart locks and these bicycles can be booked through a smart phone App, it can enable riders to avail shared transportation for short urban travel (PitchBook Data 2017). It now has more than 100 million registered users, there are about 6 million bicycles in operation, and it covers more than about 150 cities around the world. By the end of this year, the company is expected to serve more than 200 cities around the world. (China Daily 2017.)

4.2 How does the Mobike App work

The Mobike app has a nice user interface and is user-friendly. First of all, users need to download the app and sign up. The app will require user's phone number and users will receive a verification code. And then, the app will ask user to complete the real-name authentication. When user's ID information is accepted, then user will receive a notification and the app will allow user to reserve bicycles. The second step, Mobike app will require users to make a refundable 299yuan deposit, after that, renting a bicycle is only 1yuan per half hour. When users finished register part, a GPS real-time Positioning will appear on the map of the user interface, it will scan the local area to check whether there are any bicycles to rent

around. If there are bicycles nearby, some orange bicycles will appear on the map, then users can rent it. The user interface detail can be found in Figure 5.

Figure 5: The user interface of Mobike GPS real-time positioning

When users click “unlock” and scan the QR code located between the bicycle’s handlebars, the bike’s lock will be opened, see Figure 6, then the user can use the bike. When the user ends the trip, the app will automatically deduct money from the user’s electronic wallet.

Figure 6: The user interface of unlock the bike

4.3 Mobike's impact

4.3.1 Mobike's impact on society and international market

On June 16, 2017, Mobike announced that it had completed a new round of financing of more than $ 600 million, setting a record for the highest single financing since the birth of the bike-sharing industry. According to Mobike co-founder and CEO Wang Xiaofeng introduced, a new round of financing will help the Mobike speed up in the following three aspects:

(1) Mobike will accelerate the internationalization process, it plans to serve about 200 cities around the world in the end of 2017, and do their best to provide the intelligent travel solutions for more users.

(2) Mobike works with the world's leading Internet of things partners to accelerate the promotion of mobile Internet of things technology and the application of real landscape.

(3) Mobike will accelerate the strategic layout and technological innovation in the fields of artificial intelligence, intelligent hardware and so on, the technical barriers will be improved, the prefect experience will be brought to the users.

As shown in Figure 7, it can be clearly to seem that several different numbers, these numbers represent different meanings. 100+ means Mobike's services currently cover more than 100 cities worldwide. 1亿+ means it has more than 100 million registered users. 500万+ means it now has more than 5 million intelligent bicycles in domestic and overseas markets. 2500万+ means the maximum daily order volume reached more than 25 million. Therefore, the writer believe that Mobike's development brings more convenient trips, saves much energy, and reduces the environment's pollution caused by traffics. In addition, its emergence has had a significant impact on society and international market.

Figure 7: Mobike has become the world's largest intelligent bike-sharing platform (Qiu 2017.)

In March 2017, Mobike was officially entered to Singapore, taking the lead in the overseas market, and started the international journey of Chinese bike-sharing.

In June 2017, Mobike announced the opening of the service area in England, and it plans to launch 1000 intelligent bicycles in Manchester and Salford, the follow-up will gradually increase the volume of investment to meet the growing demand.

So far, the writer believes that the internationalisation of Mobike has been a success. Mobike's intelligent travel solutions will affect more and more people in the future.

4.3.2 Mobike redefined the way of people's life

Any creative company, if its products and services can be popular all over the country and even globally, the reason is that it redefined the way of life, and people seemingly get great pleasure from the bike-sharing service. For example, Uber used the sharing economy to take advantage of idle vehicles and provide a cheaper but more convenient way to travel. As a result, Uber has redefined the way of travel and has become popular around the world. Similarly, Mobike redefined the relationship between the people and city. And it is also working through its own efforts to change the way of people's life. (Ji 2017.)

Over the past year, as shown in Figure 8, with the rapid growth of smart shared bicycles represented by Mobike, bike-sharing has doubled the proportion of urban bicycles from 5.5% to 11.6%. And bike-sharing became the fourth type of travel in the city, after the bus, subway and taxi. According to the "White paper on bike-sharing and urban development in 2017", the rise of smart shared bicycles has reduced the number of car trips by 55% in China, as shown in Figure 9. The white paper report used Mobike operation data for a year, and combined with 36 cities nearly 100000 copies of questionnaires, comprehensive shows the changing of bike-sharing for urban transportation structure, urban environment, urban life, energy saving and emission reduction. (Tsinghua Industry 2017.)

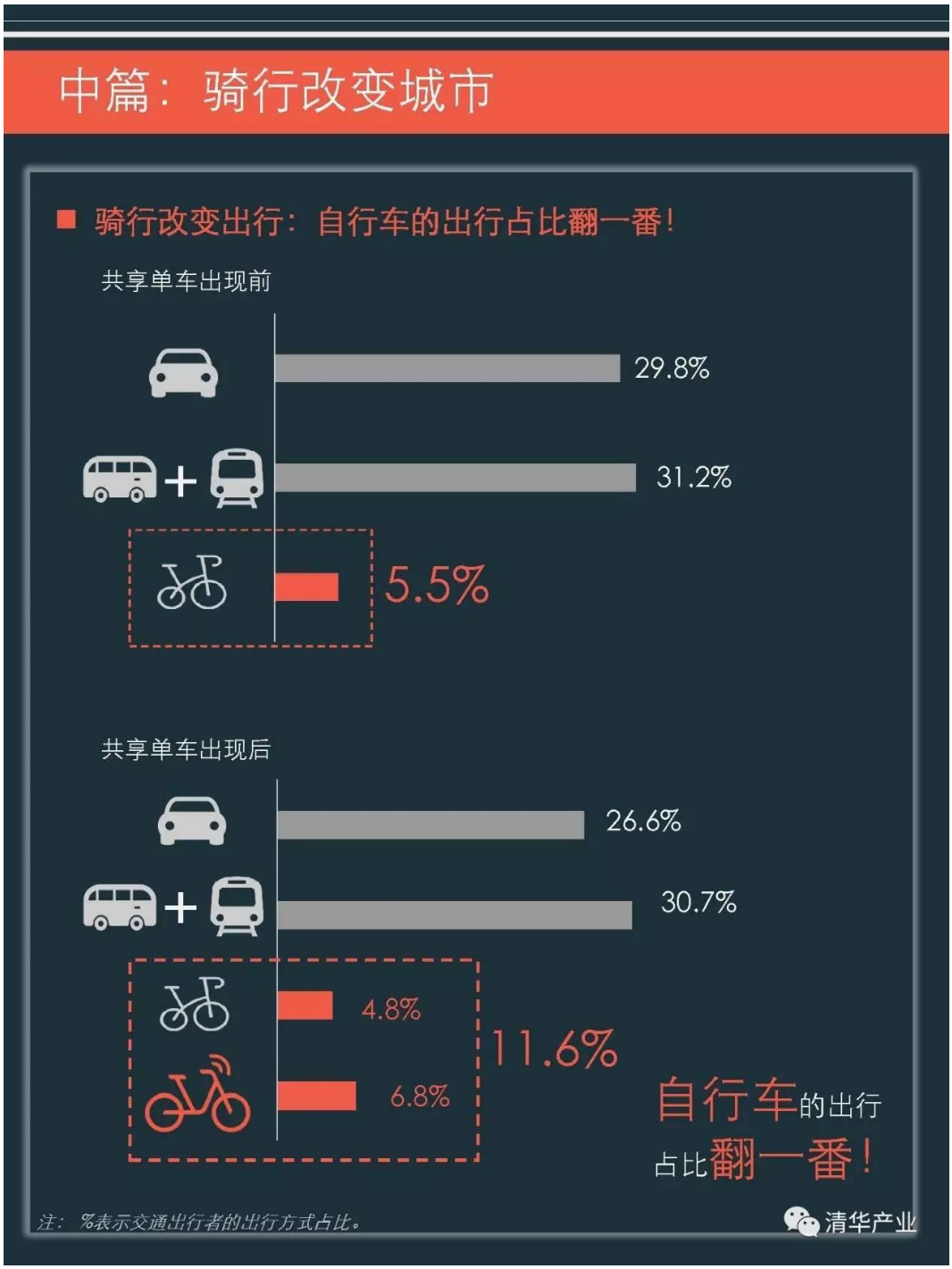

Figure 8: The proportion of bicycle trips has doubled (Tsinghua Industry 2017.)

Figure 9: Car trips were down by 55% (Tsinghua Industry 2017.)

5 CONCLUSIONS

The goal of this paper was to find out the answers for the research questions: “What are the impacts of Internet-based short-distance travel solution in China?”

In order to research the impacts of bike-sharing service, the author firstly analysed the current situation of bike sharing with PEST model. From the political environment perspective, the Chinese government vigorously promote the PPP model, the supporting policies were released in succession, it provides a good environment for the development of shared bicycle. From the economic environment perspective, at present, the mobile Internet is developing very well, a lot of smart phone users are more likely to choose bike-sharing apps to achieve the last 1-5km travel rather than subway, bus, taxi and so on. From the social environment perspective, some relevant data shows that bike-sharing has become a popular short-distance green travel solution, the emergence of bike-sharing has effectively improved the environment and traffic problems. From the technological environment perspective, the technology of high quality and innovation has contributed the popularity of bike-sharing.

The paper points out that the main effects of bike-sharing are in three aspects: people’s daily life, government and society respectively. In the daily life, it changed people’s lifestyles, the traffic congestion and the whole traffic system pressure were improved. On the government side, PPP model produced win-win cooperation, bike-sharing become a supplement to the government bicycle rental, better travel for the public, and the bike-sharing companies can get the government support of supervision and relevant preferential policies. It results to the efficiency of public resources was improved. On the society side, it significantly improved urban movement efficiency, and it has contributed the reduction of urban environmental pollution and carbon emissions. In addition, it brought the development of Internet of Things. Moreover, bike-sharing industry created more jobs in the society.

From the data of the interview, the author believe that the main impact of bike-sharing was improving and promoting the bicycle traffic, and it provided a great convenience and a healthy lifestyle for people.

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APPENDICES

The purpose for the interview

In order to research its impacts on people's daily life, the author selected five Mobike users for an interview. The motivation for the interview was to observe the user's view on the effects and new challenges caused by the Internet-based short-distance travel solution.

The number of the interviewees

Five Mobike users.

Interviewees information

Mobiker A	Male	Student
Mobiker B	Female	Student
Mobiker C	Male	Student
Mobiker D	Male	White-collar worker
Mobiker E	Male	Fitness instructor

Table 1: personal data for interviewees

Interview questions:

1. Are you a student? / What are you currently working on?
2. What is your opinion and comment on Mobike?
3. Why did you choose Mobike and what impacts do you think it would make on your daily life?
4. What problems or new challenges do you think remain with bike-sharing service?

Interview results

The answer from Mobiker A: Using Mobike is super simple, being able to improvise with my time, what I want to do. If I go someplace or somewhere, I don't have to think too much. It's nice to know there's a bike I can grab on the street, and I can go. So, I think bike-sharing service has brought great convenience to our life.

Because of the success of Mobike operation in China, this has led other companies to copied Mobike operation mode, and you can see many different colors of bicycles on the street, they are everywhere, but I think it's causing a massive problem. Because these things are like I said everywhere, and they are starting to really make the city look kind of dirty.

The answer from Mobiker B: The app is amazing, In the university, because the campus is huge, I use it to go to classrooms or go to the tennis court. I think it can save much time and is equivalent to exercising and losing weight.

Maybe some people don't care about these bikes, so they ride them, and they just leave them wherever. They fall down, they fall over, and no one picks them up. You know it's starting to make the city look like a mess.

The answer from Mobiker C: I would say Mobike is iconic, it's an iconic feature of China. I think it gives more accessibility, and less risk to just get on a bike and go and explore. It's not expensive, you don't need to be rich to have a Mobike, everybody can share it. it's a very fresh concept. The easy hop on hop off bike system has brought a new green way to people's short-distance travel.

These bikes everybody was really in love with them, it was a new thing, it's fantastic convenient the city, everybody seems to really like them, but in some important holidays, a lot of people take that time to have a day off, and people just take one of these bikes and ride down to someplace, when a lot of bikes come together in one place, you can imagine how crowded it is, people couldn't move, it was like a nightmare and people just

abandon them, because they think I can't move anymore, so they just lock them up and abandoned in there. So finally, the companies and related responsible personnel had to come in and clean their bikes up and move them out of there.

The answer from Mobiker D: They are very light, but super high quality. I guess it's just the convenience of joining those sections of your journey. Because I use metro a lot, I needed to walk a long distance to the metro station before bike-sharing service came up, but now, I can get a Mobike and use it instead of walking. And that saves ten to fifteen minutes off your journey.

And I know that it's a good idea to sharing bike, but people should have some manners. If there are no manners and if there is no principle, it can also lead to traffic jams and chaos. The bad behavior of people in use these bikes may lead to the occupation of public resources, the city's public resources are limited, people should obey the rules and use it in a healthy way.

The answer from Mobiker E: Mobike is a very popular and practical app. One of the things that works really well is the fact that you can park so easily. And I think it would promote a healthy lifestyle, in terms of exercise. Bike-sharing service creates the value, make people feel like it's cool to be doing this, then it's good.

However, People can park most of the rental bikes anywhere around city where you are allowed to park within the wide lines, this is fine, when the city introduces the bike parking spots. I think the problem is not the bikes, but the lack of designated parking areas for them. Same as for cars, when there is no parking spot, then everybody parks as they can.