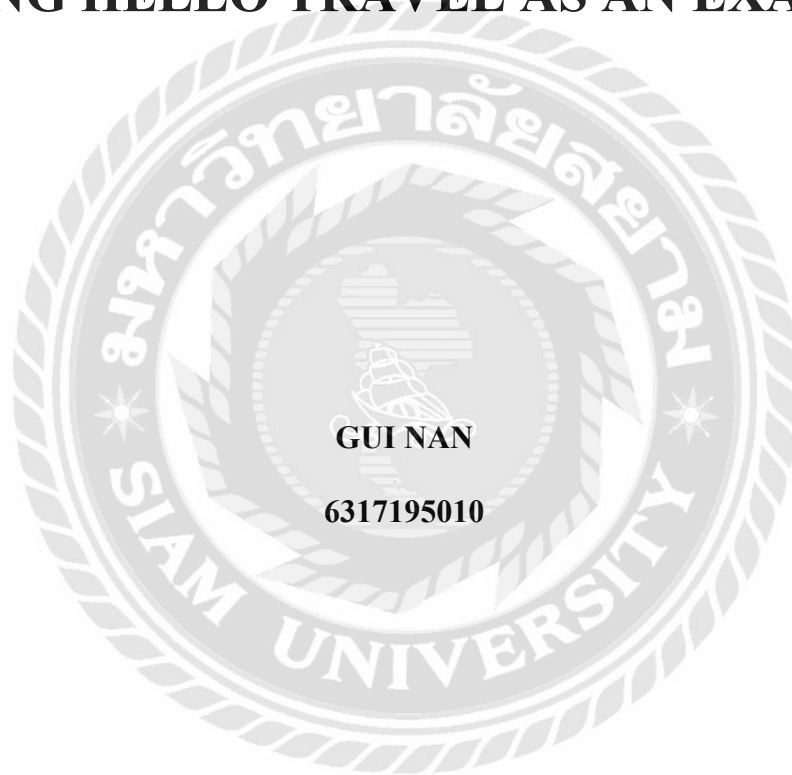




RESEARCH ON THE BUSINESS MODEL OF SHARED ELECTRIC BICYCLE IN CHINA-- TAKING HELLO TRAVEL AS AN EXAMPLE



**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION GRADUATE SCHOOL OF BUSINESS SIAM UNIVERSITY**

2023



**RESEARCH ON THE BUSINESS MODEL OF SHARED ELECTRIC BICYCLE
IN CHINA
--TAKING HELLO TRAVEL AS AN EXAMPLE**

Thematic Certificate

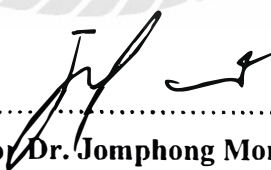
**To
GUI NAN**

This Independent Study has been approved as a Partial Fulfillment of the Requirement of
International Master of Business Administration in International Business Management

Advisor:.....

(Dr. Zhang Li)

Date:1.....9.....2023

.....
(Associate Professor **Dr. Jomphong Mongkhonvanit**)
Dean, Graduate School of Business Administration

Date:20.....9.....2023


Siam University, Bangkok, Thailand

Title: Research on the Business Model of Shared Electric Bicycle in China: A Case Study of Hello Travel

By: Gui Nan

Degree: Master of Business Administration

Major: International Business Administration

Advisor: 
(Dr. Zhang Li)

..... 11 / 9 / 2025

ABSTRACT

Chinese residents have an extremely high demand for electric bicycles, which is one of the main ways for Chinese residents to travel. After implementation of the new national standard, the electric bicycle regulatory system has gradually matured, and shared electric bicycle products have obtained regulatory licenses. The average daily demand in China exceeds 700 million electric bicycle trips, which promotes the rapid deployment of the shared electric bicycle market. However, after rapid growth in the early stages of development, the shared electric bicycle industry is faced with limited revenue capacity, out of control cost control, and disordered urban environmental governance. In addition, shared mobility will gradually develop and mature from the stage of attracting large amounts of capital investment to the commercial stage of traffic realization, with more stable users and future shared travel. The discount strength of shared travel will be significantly reduced compared to the early stage of industry development, and the growth rate of per capita consumption of shared travel will increase. The business model of shared electric bicycles needs to be further explored and improved. In this study, we take the perspective of an electric bicycle sharing company and try to systematically summarize the sustainable development and operation of the company from the economic, social, and environmental perspectives. This study employs qualitative research methods to analyze the development trend of electric bicycles and business operation models. The literature review examines existing academic literature, synthesizing relevant concepts and theories. A case analysis method is used to study representative electric bicycle companies, identifying strengths and weaknesses in their business models. After a deep investigation of the whole shared e-bike market and a full understanding of the shared

e-bike industry chain, Hello Travel, a leading company in the shared e-bike industry, was selected to explore their business model and its emerging problems, and give relevant countermeasures and suggestions. This research finds that Hello Travel is facing the challenges of limited platform monetization ability, high main business cost and disordered urban environmental governance, and proposes suggestions for the challenges faced by enterprises. This research provides a reference for the business development of shared electric bicycles in China, and plays a role in improving it.

Keywords: shared electric bicycle, Hello Travel, shared economic business model



Declaration

I, GUI NAN, hereby certify that the work embodied in this independent study entitled "RESEARCH ON THE BUSINESS MODEL OF SHARED ELECTRIC BICYCLE IN CHINA-- TAKING HELLO TRAVEL AS AN EXAMPLE" is result of original research and has not been submitted for a higher degree to any other university or institution.



GUI NAN

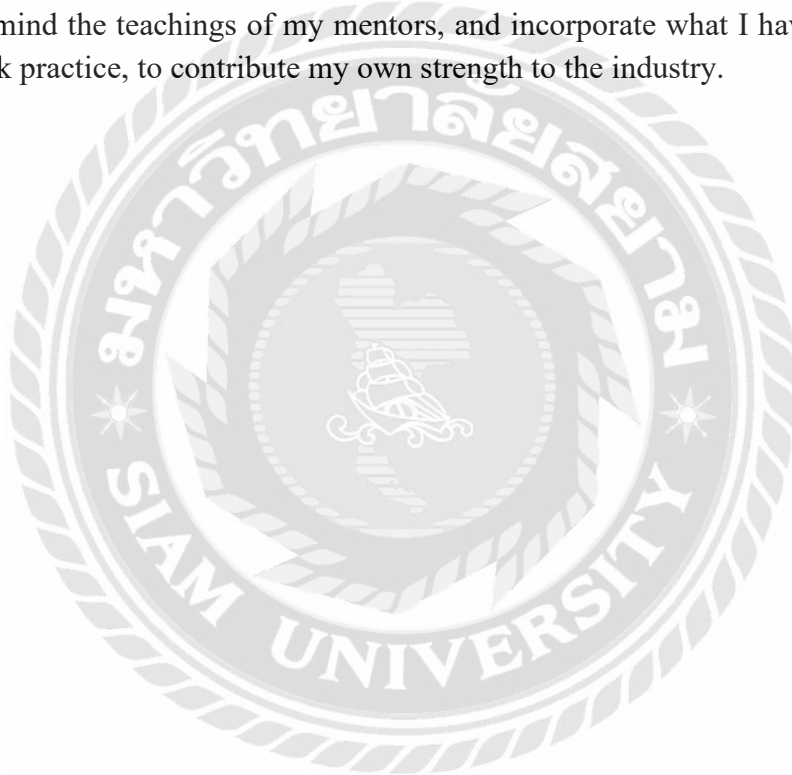
(GUI NAN)

May 12, 2023

ACKNOWLEDGEMENTS

I am very grateful to my supervisor for the careful guidance of my study. My supervisor was gentle and amiable. When giving me thesis guidance, he was tireless and persuasive, gave me a lot of inspiration and analysis, and gave me detailed suggestions on the topics I proposed. Thanks to my family for creating a relaxed and pleasant learning atmosphere for me, and to the company for their tolerance and encouragement during my study life. At the same time, I would also like to thank the other teachers in the college. Every teacher has made me respect and admire from the bottom of my heart.

Although this paper has many shortcomings, I have benefited a lot from constantly reviewing literature, sorting out materials, correcting past theoretical blind spots, and improving past knowledge systems during this process. In the future work, I will leave the status of a student, but I will continue to maintain the original intention of lifelong learning. I will bear in mind the teachings of my mentors, and incorporate what I have learned into my future work practice, to contribute my own strength to the industry.



摘要

题目： 中国共享电单车商务模式研究——以哈啰出行为例

作者： 桂楠

学位： 工商管理硕士

专业： 国际商务管理

导师：

(博士. 张力)

近年来，中国居民对于电动自行车的需求极高，是中国居民出行的主要方式之一。新国标颁布实施后，电动自行车监管体系逐渐成熟，共享电动自行车产品获得监管牌照。中国日均需求超过7亿次电动自行车出行，推动共享电动自行车市场快速布局。然而，共享电动自行车行业在经过发展初期快速的增长，目前面临着变现能力有限、成本管控失控、城市环境治理失序的问题。此外，共享出行从吸引大量资本投入的阶段逐步发展成熟到流量变现的商业化阶段，将拥有更稳定的用户和未来发展前景。共享出行的折扣力度较行业发展初期将明显减弱，共享出行人均消费增速将提升。因此，共享电动自行车的商业模式有待进一步探索和改进。在本研究中本文以共享电动自行车公司为研究视角，试图从经济、社会、环境等角度系统总结该公司的可持续发展和运营情况。本研究采用定性研究方法来分析电动自行车的发展趋势和商业运营模式。使用文献综述研究方法对现有的学术文献中提到的相关概念和理论进行总结。采用案例分析法对具有代表性的电动自行车企业进行研究，找出其商业模式的优势和劣势。本文在对整个共享电动自行车市场深度调查，充分了解共享电动自行车产业链之后，选取共享电动自行车行业中的龙头企业哈啰出行作为研究案例，探索企业商业模式及其出现的问题，给出相关的对策与建议。本研究发现哈啰出行面临平台变现能力有限、主营业务成本高和城市环境治理无序的挑战，并针对企业面临的挑战提出建议。本研究将为中国共享电动自行车的商务发展提供参考，起到完善推进作用。

关键词：共享电单车，哈啰出行，共享经济，商务模式

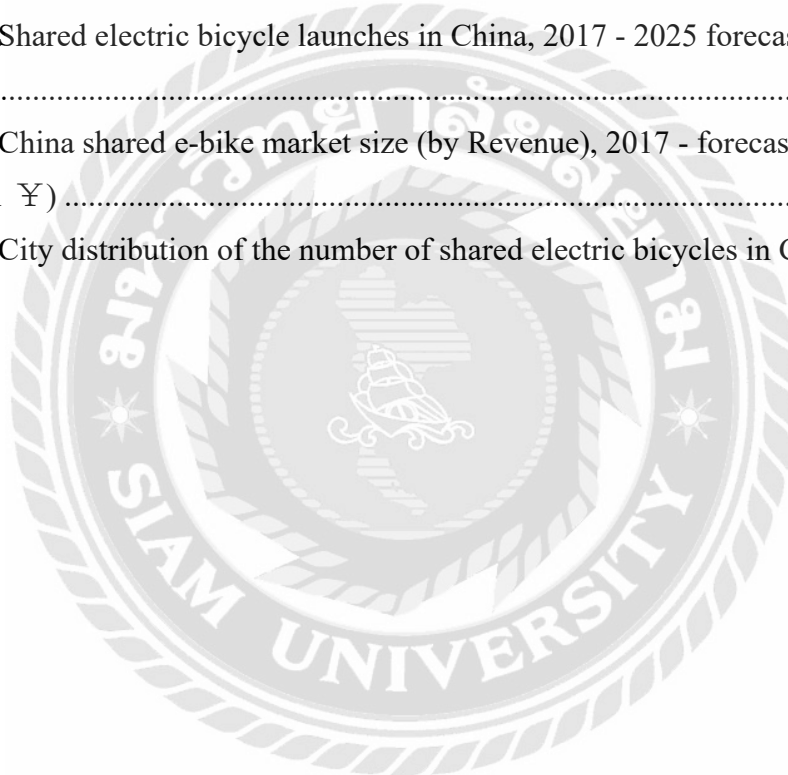
Contents

1. INTRODUCTION	1
1.1 Research background	1
1.2 Research questions	7
1.3 Objective of the study.....	8
1.4 Significance of study	10
1.5 Scope of the study	11
2. LITERATURE REVIEW	13
2.1 Business model.....	13
2.2 Sharing economy business	15
2.2.1 Traditional and sharing economy business model operating logic.....	17
2.2.2 Sharing economy business model advantages	18
2.3 Value chain-based cost management	19
2.4 Strategic business management theory.....	20
2.5 Business model innovation theory	22
3. RESEARCH METHOD.....	25
3.1 Main research method	25
3.2 Introduction of company and sharing economy business model	30
3.2.1 Introduction of problem study company.....	30
3.2.2 Sharing economy business model drivers.....	31
3.2.3 Sharing economy profit model.....	33
3.2.4 Risk control for sharing economy business models.....	34
4. CASE ANALYSIS AND RESULTS.....	34
4.1 Chinese shared e-bicycle market analysis	35
4.2 Industry chain analysis	38
4.2.1 Upstream of the industry chain.....	38
4.2.2 Midstream of the industry chain	39
4.2.3 Downstream of the industry chain	40
4.3 Shared e-bicycle PEST analysis	41
4.3.1 Policy analysis	41
4.3.2 Economic analysis	42
4.3.3 Social analysis.....	42
4.3.4 Technical analysis.....	43
4.4 Hello travel SWOT analysis.....	44

4.4.1	Strength analysis	44
4.4.2	Weakness analysis	45
4.4.3	Opportunity analysis	47
4.4.4	Threat analysis	47
4.5	Hello travel challenges	48
4.5.1	Company background and introduction.....	48
4.5.2	Limited platform monetization ability.....	48
4.5.3	High cost of main business	49
4.5.4	Disordered urban environmental governance	49
5.	CONCLUSION.....	51
5.1	Conclusion.....	51
5.2	Suggestions.....	52
5.2.1	Improve the level of operating income and meet the core needs of users ...	52
5.2.2	Optimize the operating cost structure and strengthen the refinement of management	54
5.2.3	Improve the overall user experience	56
5.2.4	Actively practice social responsibilities and deepen government-enterprise collaboration.....	57
5.2.5	Enhance awareness of environmental protection and build a green long-term mechanism.....	60
	REFERENCES	64

Figure contents

Figure 1.1 Share of Chinese residents by mode of travel.....	2
Figure 1.2 China Electric Bicycle Production and Sales, 2016 - Forecast 2025(unit: million units)	3
Figure 1.3 Electric bicycle parc in China (unit: million units).....	4
Figure 1.4 Shared mobility transactions in China, 2016 - forecast 2025(unit: billion ¥) 5	
Figure 1.5 Shared mobility users & user penetration in China, 2016 - forecast 2025 (unit: billion people)	6
Figure 2.1 Theoretical Framework Diagram	24
Figure 4.1 Shared electric bicycle launches in China, 2017 - 2025 forecast (unit: million)	35
Figure 4.2 China shared e-bike market size (by Revenue), 2017 - forecast 2025 (unit: billion ¥)	36
Figure 4.3 City distribution of the number of shared electric bicycles in China, 2020....	37



1. INTRODUCTION

1.1 Research background

Chinese residents have a very high demand for electric bicycles. After the promulgation and implementation of the new national standard, the electric bicycle supervision system has gradually matured, and shared electric bicycle products have obtained regulatory licenses. Wells et. al., (2015) attempt to understand the size of the Chinese e-bike (electric two-wheeler) market and begin to explain its emergence with a view to outlining the prospects for learning from this case for application in other countries around the world. China's average daily demand exceeds 700 million electric bicycle trips to promote the rapid layout of the shared electric bicycle market. China's leading electric bicycle sharing companies include Hello, Qingju and Meituan, accounting for more than 90% of the revenue of China's shared electric bicycle market. All three enterprises first launched bike-sharing services, providing a large number of effective travel-sharing user data for the layout of shared electric bicycle services. From 2017 to 2020, the number of shared electric bicycles increased significantly from 175,000 to 1,517,000 million. At present, the number and users of shared electric bicycles are concentrated in second-tier cities, third-tier cities, and third-tier cities. In the future, the first and second tier cities will be strict, and the shared electric bicycle business area will still be concentrated in the sinking market of mainly third-tier and lower cities. In 2020, the average total daily travel demand of Chinese residents exceeded 2 billion times, of which two-wheelers accounted for the highest proportion of various travel modes. Two-wheelers can be divided into electric bicycles and bicycles. From Figure 1.1, by the National Bureau of Statistics, electric bikes account for 64.5% of the two-wheeled travel modes. Therefore, Chinese residents' demand for electric bicycles is extremely high, and it is one of the main ways for Chinese residents to travel. In contrast, the demand for four-wheeled vehicles and public transportation is lower than the proportion of electric bicycle travel. The number of public transport services in China is constantly increasing, and the number of residential cars is also constantly increasing, but the overall growth rate of both is limited. In addition, the transportation resource infrastructure in China's major cities has been basically completed, and the travel demand of residents in some second-and third-tier and third-tier cities will still be solved by two-wheelers.

Share of Chinese residents by mode of travel, 2020

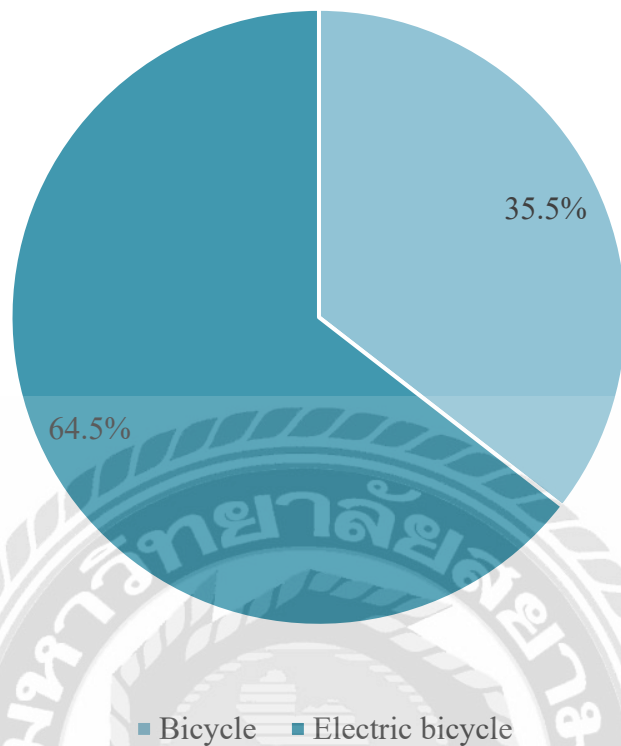


Figure 1.1 Share of Chinese residents by mode of travel

Data source: National Bureau of Statistics (<http://www.stats.gov.cn/>)

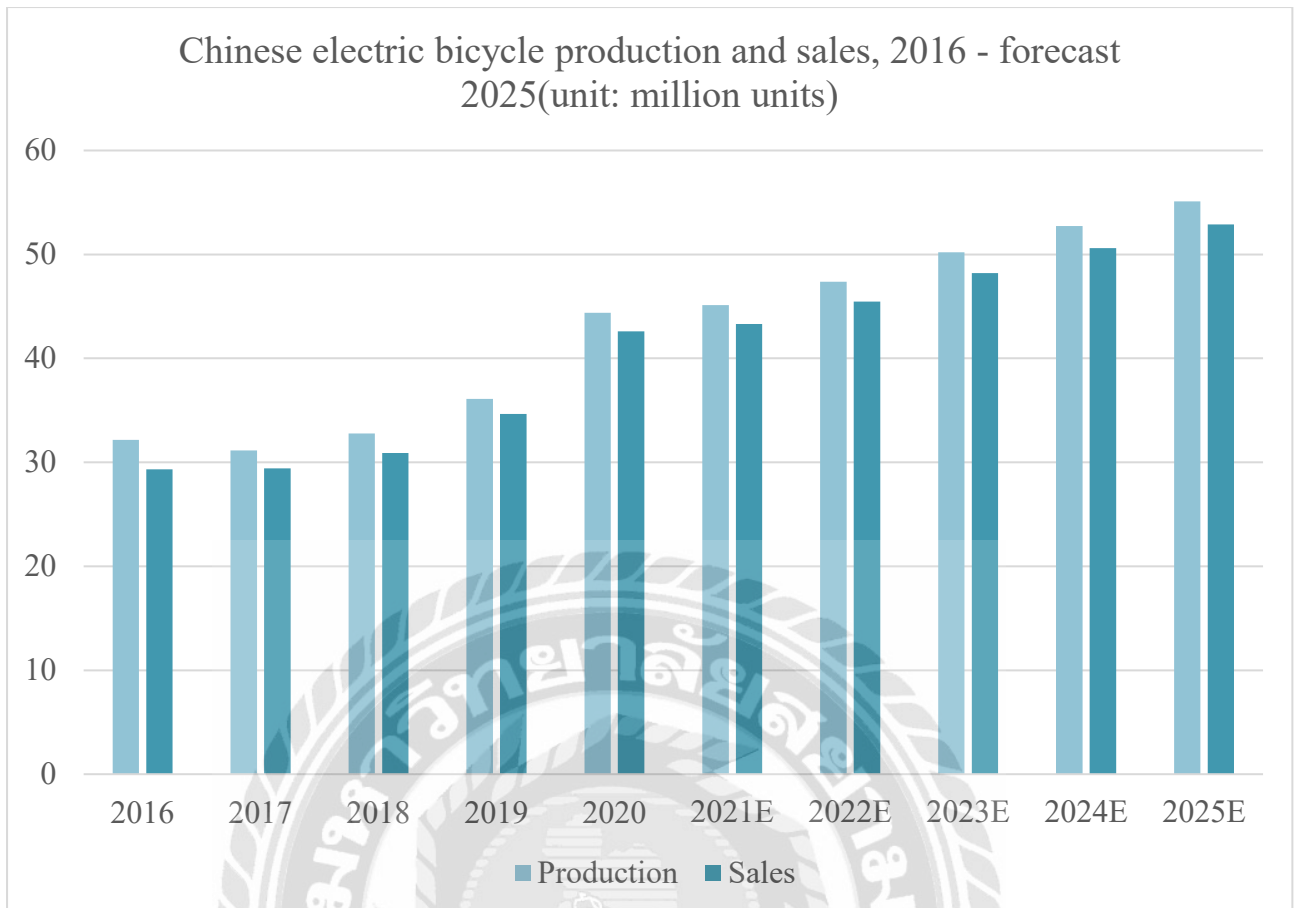


Figure 1.2 China Electric Bicycle Production and Sales, 2016 - Forecast 2025(unit: million units)

Data source: Ministry of Industry and Information Technology (<https://www.miit.gov.cn/>)

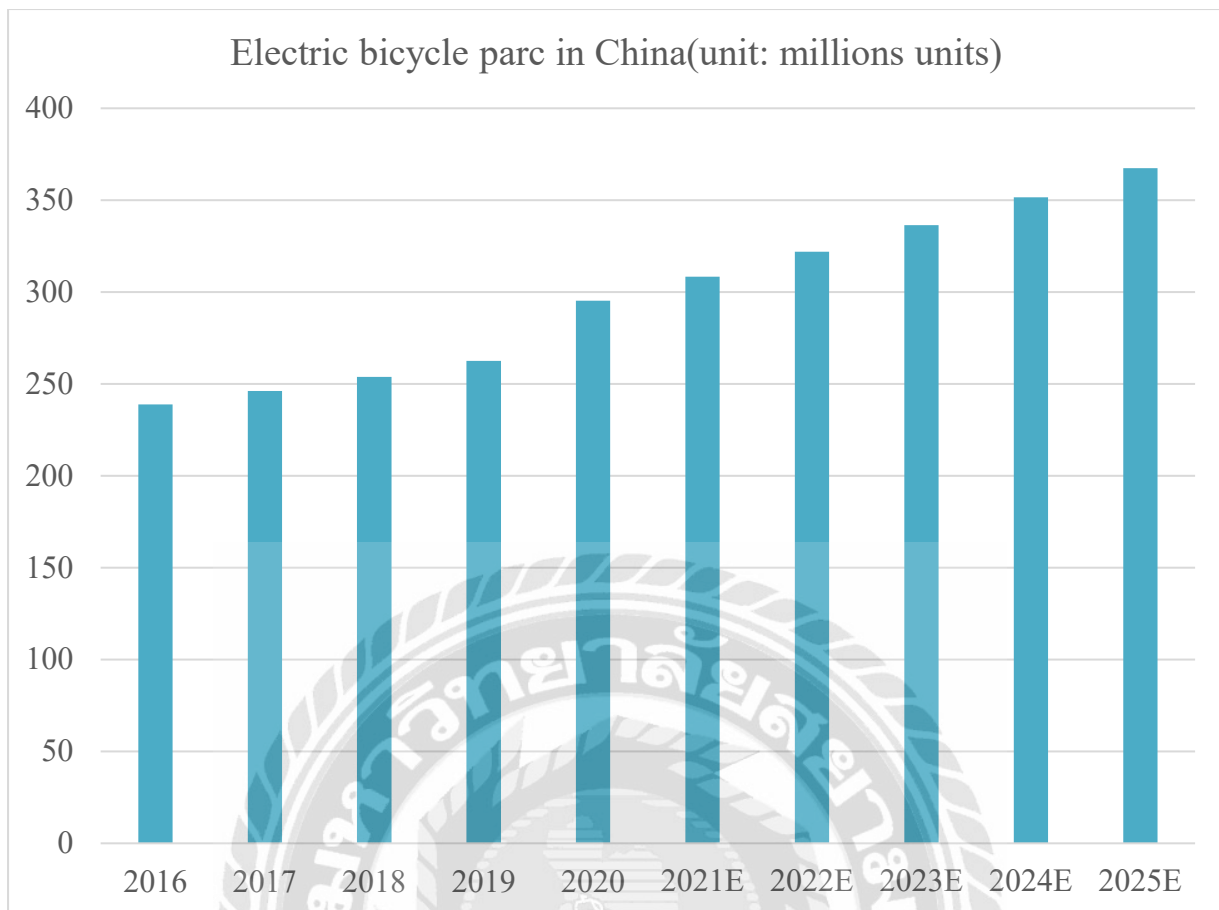


Figure 1.3 Electric bicycle parc in China (unit: million units)

Data source: Ministry of Industry and Information Technology
(<https://www.miit.gov.cn/>)

Lee et. al., (2020) analyze the acceptance of ride hailing services in China in the context of a socio-technical system set up for traditional services. Based on a one-year field survey conducted from 2015 to 2017, shared mobility addresses the pain points of users' transportation needs and has a stable growth rate for future transactions. According to data from the State Information Centre, China's sharing economy market will have a transaction size of approximately RMB3,377.3 billion in 2020, achieving year-on-year growth of approximately 2.9% despite the impact of the epidemic. In terms of growth rate, the impact of the epidemic on different sectors of the sharing economy varies significantly. Two sectors, knowledge and skills and healthcare, grew by 30.9% and 27.8% respectively year-on-year. The three sectors of shared accommodation, shared office and shared mobility saw significant declines in transaction size, down 29.8%, 26% and 15.7% year-on-year respectively. In terms of policy direction, the development of new business models represented by shared consumption will become an important working hand to boost the economy, of which expanding domestic demand is the core of the main domestic cycle. The sharing economy can further unlock the potential of domestic demand and develop new service industries that can meet the diverse needs of consumers from the supply side. The goal of expanding domestic demand has created a new demand for the development of sharing-based services, which means that there is a huge

potential market for the sharing economy in the future.

In 2020, the value of shared mobility transactions in China will be approximately 227.6 billion RMB. Shared mobility includes shared bicycles, shared electric bicycles, shared cars, and online vehicles. The social value of shared mobility is becoming increasingly evident. The social value of shared mobility has become increasingly evident, as shared bicycles and shared electric bicycles can effectively solve the problem of close distance travel for Chinese residents and save travel costs in an environmentally friendly manner. As a result, the number of bicycle and motorbike sharing is gradually increasing with policy support. The number of shared bikes and shared motorcycles is gradually increasing with policy support. At the same time, they provide flexible employment opportunities and relieve some of the pressure on employment in society, and the number of users of car-sharing and net-contracted vehicles is increasing. The importance of shared mobility promotes government departments, industry associations, industry leaders and others to work together to develop a regulatory system and safety assurance mechanism for shared mobility segments etc. Therefore, as an important component of the sharing economy, in the event of a shrinkage in the shared mobility market in 2020, shared mobility transactions will still grow at a compounded rate of 15.3% from 2016 to 2020. The combined growth still reaches 15.3%.



Figure 1.4 Shared mobility transactions in China, 2016 - forecast 2025(unit: billion ¥)

Data source: The State Information Center (<http://www.sic.gov.cn/>)

In 2020, according to The State Information Center, the number of shared mobility users in China will be approximately 590 million, and from 2016-2020, the number of shared mobility users in China will grow at a compound annual growth rate of 11.2%, and the shared mobility penetration rate will increase from 27.2% to 41.9% over the same period. 2020-2025, the growth rate of shared mobility users in China will slow down significantly and the growth rate of penetration rate will decrease, limited by the number of users who demand shared mobility. The compound annual growth rate of shared mobility users will drop to 1.2% in 2020-2025.

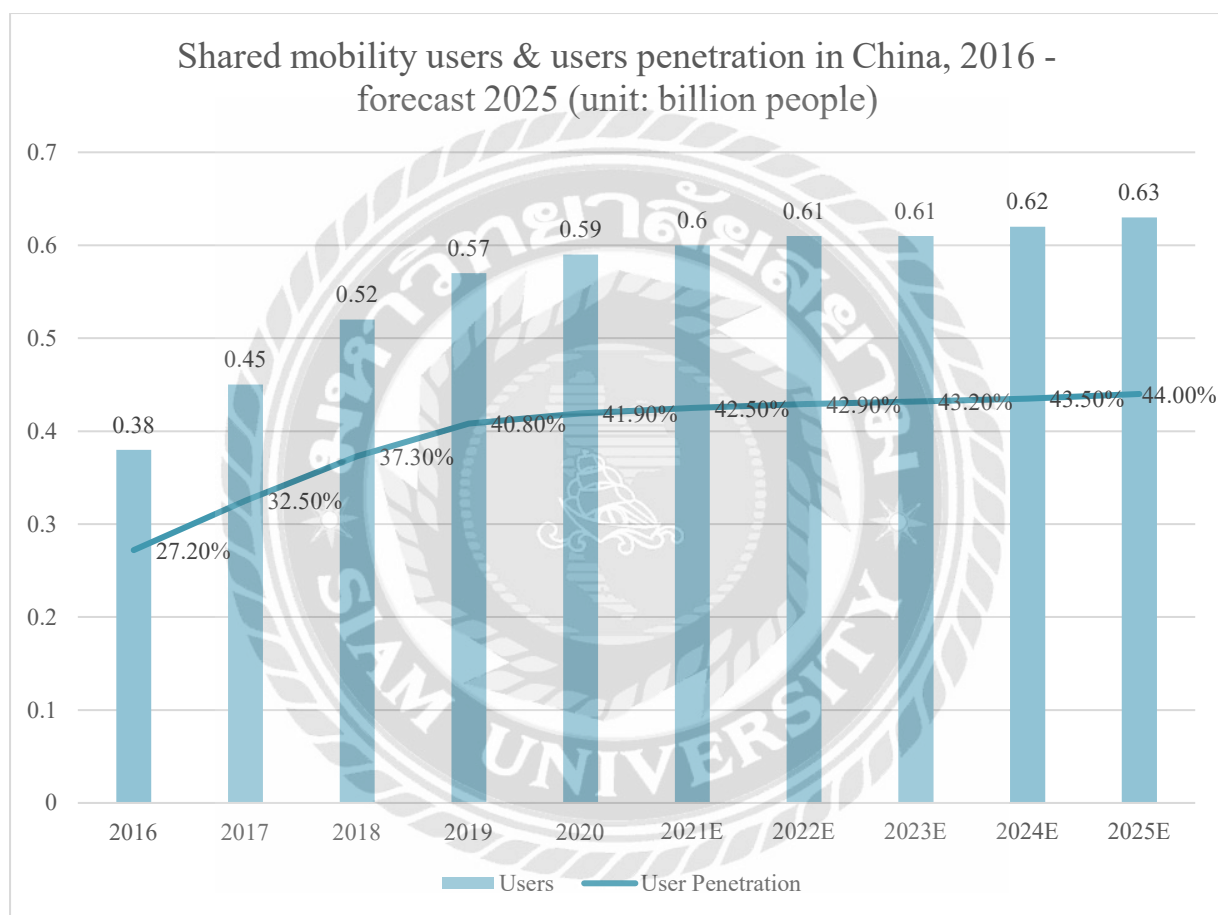


Figure 1.5 Shared mobility users & user penetration in China, 2016 - forecast 2025 (unit: billion people)

Data source: The State Information Center (<http://www.sic.gov.cn/>)

In addition, shared mobility will gradually develop and mature from the stage of attracting large amounts of capital investment to the commercial stage of traffic realization, with more stable users and future shared travel. The discount strength of shared travel will be significantly reduced compared to the early stage of industry development, and the growth rate of per capita consumption of shared travel will increase.

1.2 Research problems

Chen et. al., (2016) suggested that a reverse logistics network system for waste battery recycling should be established in the future; in addition, the responsibility of producers should be strengthened, publicity should be increased, public awareness should be raised, and green public transportation should be developed. Z. Li et. al., (2017) presents a comprehensive data analysis on the integration of electric vehicles and green smart cities. B. Li et al. (2017) aims to quantify changes in urban cycling mode share in China and explore potential reasons for this. As a new and green way to travel, shared electric bicycles are the closest thing to people's daily lives, providing convenience, economy, greenness, and low-carbon to people who commute to work every day. The study of the sustainable operation and management of China's shared electric bicycle industry should not only focus on the economic aspects of the company itself, but also on its social and environmental impacts. It is only by looking at this new phenomenon from multiple perspectives that we will be able to understand the whole picture and gain insight into the core issues.

In 2018, the capital market calmed down as many companies collapsed due to immature business models, sloppy operational management, and serious homogenization. As of 2022, after years of brutal competition, those companies with relatively mature operating models and rigorous market tests have survived, forming a relatively stable market pattern dominated by three companies: Hello Travel, Meituan Bike and Qingju Bike.

Considering international and Chinese practices, Cai et al. (2021) the corresponding development strategies are proposed. In retrospect, China's shared electric bicycle industry has experienced a period of growth catalyzed by capital, a period of calm when many companies went bankrupt, a period of recovery when various mergers and acquisitions and restructuring were staged, and now it has entered a mature period of undercurrents and inventory games. China's shared electric bicycle market has gradually taken shape, and its user scale has shown a stable trend.

Against the backdrop of a maturing market, how much room is there for future growth in China's shared electric bicycle industry? Where should the future development direction of shared electric bicycle enterprises go? What are the competitive advantages of shared bicycle enterprises in the whole value chain? What are the strengths and weaknesses of the business models of the surviving companies in the face of fierce and brutal competition? How can shared bicycle enterprises achieve long-term sustainable operation? In this paper, we have selected Hello Bike as a case study to examine the positioning of shared bicycles in the industry and their future sustainable development. In the course of its growth, Hello Travel has faced enormous challenges brought about by changes in the external social and urban environment, and after the ebb of capital, how does the business operate? How can we achieve self-sustainability and meet external challenges by competing for cost control and diversified development? These are all questions that are These questions are worth exploring and studying.

1.3 Objective of the study

Cheng (2016) proposes a robust framework and holistic understanding of the sharing economy field and calls for a new theory-based sharing economy research agenda to coalesce multiple levels of perspectives. Based on a framework that classifies sharing economy practices based on detailed characteristics, Habibi et al. (2017) provides extensive recommendations to managers and practitioners. Sharing electric bicycle has experienced years of disorderly expansion and brutal growth in China. As the most representative emerging product of the sharing economy, both the government and the community have given great understanding and tolerance to it, so much so that people once overlooked the hidden dangers it brought in the process of enjoying the convenience of travel. In this study, we take the perspective of an electric bicycle sharing company and try to systematically summarize the sustainable development and operation of the company from the economic, social, and environmental perspectives.

In this study, we aim to analyze the economic aspects of an electric bicycle sharing company. Firstly, we will assess the financial viability and profitability of the company, examining its revenue streams, operating costs, and potential for sustainable growth. By analyzing financial data and conducting relevant market research, we can determine the company's financial sustainability and identify areas for improvement. Additionally, we will investigate the economic impact of the company on the local economy, considering factors such as job creation, tourism revenue, and the stimulation of ancillary industries. Finally, we will evaluate the cost-effectiveness and efficiency of the company's operations, exploring opportunities to optimize resource allocation, streamline processes, and enhance overall profitability.

From a social standpoint, our research objectives revolve around understanding the impact of the electric bicycle sharing company on the community it serves. Firstly, we will investigate the social acceptance and adoption of electric bicycle sharing among the target population. Through surveys, interviews, and observational studies, we will gauge public perceptions, attitudes, and usage patterns of the service. Additionally, we will examine the broader social implications of the company, focusing on its influence on transportation behaviors and patterns. By studying changes in commuting habits, reduction in car usage, and shifts towards active transportation, we can assess the social benefits and potential drawbacks of the service. Lastly, we will assess the company's role in promoting active and healthy lifestyles, examining its impact on physical activity levels, public health outcomes, and social connectivity.

Considering the environmental impact of the electric bicycle sharing company is crucial for sustainable development. Our research objectives in this regard encompass evaluating the environmental benefits, mitigating potential drawbacks, and ensuring the company's operations align with environmental stewardship. Firstly, we will evaluate the environmental benefits of electric bicycle sharing, focusing on reduced carbon emissions, improved air quality, and decreased reliance on fossil fuel-based transportation. By conducting life cycle assessments

and analyzing data on energy consumption and emissions, we can quantify the positive environmental impact. Additionally, we will assess the company's influence on traffic congestion and noise pollution, examining its role in reducing vehicle kilometers traveled and promoting quieter transportation modes. Finally, we will investigate the sustainability of the company's operations, addressing concerns related to the sourcing and disposal of electric bicycles and batteries, and identifying strategies to minimize waste and optimize resource usage.

To provide a comprehensive analysis, our research objectives also include an integrated perspective that examines the interdependencies and trade-offs between the economic, social, and environmental aspects of the electric bicycle sharing company's operations. We will identify the synergies and potential conflicts between these perspectives to develop a holistic understanding of the company's overall sustainability. Moreover, we will propose strategies and recommendations for optimizing the sustainable development and operation of the company, considering the interconnected nature of these perspectives. By developing a framework that integrates economic, social, and environmental considerations, we can evaluate and monitor the company's performance in achieving sustainable goals across all dimensions. This integration will ensure that the electric bicycle sharing company is able to thrive economically, benefit society, and contribute to environmental preservation simultaneously.

Peer-to-peer trust plays a critical and complex role in almost all sharing economy interactions. Hawlitschek et. al., (2018) elucidates the concept of how to resolve these conflicts and explores the potential of blockchain technology to address trust issues in the sharing economy. Ganapati et. al., (2018) explores the policy responses to the sharing economy. Crommelin et. al., (2018) argues that while some Airbnb listings do fit the narrative of the sharing economy, others are part of the traditional economy of short-term rentals. (Cheng et. al., 2018) investigate the factors affecting the quality of online and offline services for car rental businesses driven by the sharing economy. In recent years, digital platforms have turned into the most important players in the global sharing economy, turning global firms such as AirBnB, Booking or TripAdvisor into intermediaries that control and profit from most transactions. Focusing on accommodation, Gössling et al. (2019) discusses its social, economic, environmental, and political impacts compared to the SDGs.

This paper combines the operational practice of Hello Travel, and wants to explore the sustainable operation mode of the shared electric bicycle industry. From the perspective of internal management and external social responsibility and ecological environment, the paper aims to take into account the interests of enterprises, users and governments, and to achieve a sustainable operation. The sustainable operation of shared bicycles in cities involves various aspects, which is not only a research topic worthy of continuous discussion, but also a practical reference and model for other enterprises in the shared bicycle industry in China.

By describing the target cases, this paper illustrates the problems encountered in the development of Hello Travel, and by drawing on theories of sustainable operation management, cost management and collaborative governance, it provides an in-depth analysis of the three

cases in the article, namely, "limited platform realization", "imbalanced cost control" and "increased government regulation", and proposes corresponding solutions to the relevant problems.

The objectives of this research can be summarized into the following points:

1. Economic Perspective: Analyze financial viability, assess economic impact, investigate pricing strategies, and explore scalability and growth potential.

2. Social Perspective: Evaluate accessibility and inclusivity, investigate transportation patterns and behavior, assess social benefits and drawbacks, and examine user satisfaction and perception.

3. Environmental Perspective: Analyze environmental sustainability of operations, and explore potential for renewable energy integration.

4. Comparative Analysis: Compare sustainability performance with other transportation modes, analyze factors influencing user preference, assess competitiveness and market positioning, and identify best practices and lessons learned.

1.4 Significance of study

Theoretical implications: John (2013) explores the concept of sharing in three distinct domains. web 2.0, whose constitutive activities are sharing (links, photos, status updates, etc.); the "sharing economy" of production and consumption; and intimate human relationships, where the therapeutic spirit includes a cultural imperative to share emotions. Based on participant observation of sharing economy "festivals" and analysis of online platform vocabularies (Richardson, 2015), three manifestations of sharing through community, access, and collaboration are outlined. Martin et al. (2016) present an analysis of the online sharing economy discourse; identifying a framework for the sharing economy. (1) an economic opportunity; (2) a more sustainable form of consumption; (3) a pathway to a decentralized, equitable, and sustainable economy; (4) the creation of unregulated markets; (5) a reinforced neoliberal paradigm; and (6) a disjointed field of innovation. The sharing economy in China is still in its developmental stage, with various infrastructures and legal provisions being gradually regulated. In the area of shared e-bicycle, which is the subject of this paper, the emergence of shared e-bicycle has significantly refreshed people's choice of travel. At the same time, there is a lack of research on the O2O (Online to Offline) business model of the sharing economy in China due to the late development of the sharing economy and related companies. Most of the existing literature in China focuses on the overall market logic of sharing economies. However, there is little research on the business models of sharing economies and their enterprises.

Practical significance: As a new economic model that saves resources, the sharing economy is in line with China's sustainable development and the concept of supply-side reform, and has brought significant changes to various industries. At present, the blind investment of social capital has led to numerous failures in the sharing economy, and the many cases of sharing economy bankruptcies have provided more perspectives for future generations to

consider. How to better develop sharing economy enterprises, better coordinate social resources and better serve society is also the relevance of this study. Firstly, an in-depth analysis of the current sharing economy market in China is needed, followed by a definition of the categories of shared e-bicycle, and then a selection of typical enterprises and a detailed description and analysis of their business models to identify commonalities and characteristics, and to develop a strategic pathway applicable to the sustainable development of shared e-bicycle enterprises.

1.5 Scope of the study

This paper analyses the current situation and development trend of shared electric bicycles in China through case studies and graphical data, and analyses the development models of typical companies sharing electric bicycles in China.

As an emerging business product in the new era, the sharing economy has undergone various commercial competitions and eventually polished out products and business models that have penetrated into all aspects of people's daily lives. In particular, the new business model represented by shared electric bicycles has become an indispensable part of people's travel. Despite the fact that e-bicycles have been in development for many years, capital has quietly receded and market competition has become increasingly fierce, how can they stand out in the new market landscape and how can they achieve sustainable operation and management on three levels: economic, social and environmental? The focus of this article is on the concrete case of Hello Travel and how to respond to it.

The first step is to raise the level of operating income and meet the core needs of users. From the revenue side, we achieve business operations. The first is to improve the level of operating revenue to meet the core needs of users. On the one hand, we need to improve the profitability of our business. By continuously polishing the core bicycle business and actively exploring new innovative businesses, we can further make up for our weak realization ability. The other is to improve the overall user experience. The other is to improve the overall user experience by adhering to the core value of "user centrality" and organizing a top-down "user experience" programme. The company's core value of "user-centrality" was upheld, and a top-down awareness of "user-first" management was established within the organization.

The second is to optimize the operating cost structure and strengthen the refinement of management. From the cost side and efficiency perspective, we will achieve sustainable operation management in business operation. Two of the most central points are, on the one hand, to strengthen the level of cost management control, split the vertical value chain of the upstream, midstream, and downstream cost structure, further reduce various cost expenditures, and improve the vehicle life cycle. On the other hand, we have established a standardized service and operation system, with a series of technical capabilities to further improve the efficiency of operation and maintenance and dispatch, and optimized customer communication processes to handle different types of customer complaints in a timely and proper manner, so

that users can "have a bike and ride a good bike".

Thirdly, we are actively practicing social responsibility and deepening the cooperation between government and enterprises in governance. From a social perspective, we should realize sustainable operation and management of enterprises at the level of urban governance. As the main body of regulation, the government needs to actively play a guiding role, improve relevant laws and regulations, and fill the previous legal gaps; strengthen effective communication between the main bodies within the government, strengthen the infrastructure of the shared electric bicycle industry, and perform regulatory functions in accordance with the law. At the same time, as the main body of governance, shared electric bicycle enterprises should fulfill their social responsibility, and the government and enterprises should collaborate effectively to jointly govern, build a mutual help and governance system for the shared electric bicycle industry, establish support and emergency plans for emergencies; and with the advantage of their own big data, artificial intelligence and other cutting-edge technologies, integrate into the city's smart transportation and jointly build a new ecology of urban mobility.

The fourth is to enhance awareness of environmental protection and build a green long-term mechanism. From an environmental perspective, the sustainable operation and management of enterprises at the level of ecological and environmental protection should be realized. As a product with public transport attributes, we need to promote the management of the entire life cycle of the product, i.e., from product design, production, launch, management, recycling, and reclamation. The 3Rs principle should be followed in all aspects of product design, production, launch, management, recycling, and reclamation to achieve comprehensive recycling of discarded bicycle parts. At the same time, the company advocates "green travel and civilized cycling" for all people. The new trend of "green travel and civilized cycling" has aroused the concern and attention of all sectors of the community for the urban environment, and the We are committed to the protection and management of the urban environment.

These four points are crucial to the sustainable management of Hello Travel's operations. Even in the case of quasi-public goods such as shared bicycles, it is important to learn how to create a profitable business model that is free from the dependence on capital infusion and achieves stable and positive revenue growth. The company should uphold the core value of "user-centricity", pay attention to user satisfaction and other core indicators, continuously optimize the product and service experience, and effectively solve key issues of concern to users, thus enhancing the core competitiveness of the company. At the same time, external operations should focus on collaborative governance between government and enterprises, as well as strengthening the awareness of the community to protect the urban environment. Through effective and feasible practical measures, we can reduce the negative externalities of shared bicycles on the city and continuously improve the quality of urban environment. The city's transport efficiency will continue to improve through effective and practical measures to reduce the negative externalities of bike-sharing on the city, thus enhancing the convenience and happiness of the people. This will enhance the convenience and well-being of people in the city.

2. LITERATE REVIEW

2.1 Business model

Although business models have been an integral part of trade and economic behavior for a long time (Teece, 2010), the concept of business models became prevalent with the advent of the Internet in the mid-1990s. However, studies of business models often do not have clear conceptual definitions (Zott et al., 2011). Business models have been used in prior research to try to address or explain three phenomena: (1) e-commerce and the use of information technology in organizations; (2) strategic issues such as value creation, competitive advantage, and firm performance; and (3) innovation and technology management.

Internet is the main driver of the surge of interest in business models. By far the research stream that has given the most attention to business models is e-commerce. Scholars who focus on e-commerce as a field of business model research are primarily interested in understanding the totality of companies engaged in Internet-based business approaches and the role these companies play in their respective ecosystems (Zott et al., 2011). Most of the research in this area has been descriptive, with varying degrees of emphasis on the concept of value (e.g., value streams, customer value, value proposition), financial aspects (e.g., revenue streams, cost structures), and aspects related to the network structure between the company and its exchange partners (e.g., delivery channels, network relationships, logistics flows, infrastructure). Each of these components can form part of a generic business model, which can be a source of differentiation between business model types. Thus, in this area of research, a business model is not a value proposition, a revenue model, or a network of relationships per se; it is a combination of all these elements.

Business models have received increasing attention from scholars and business strategists interested in explaining a company's value creation, performance, and competitive advantage. The digital economy offers the potential for firms to experiment with new forms of value creation mechanisms that are networked, i.e., value is created by firms and numerous partners working together for multiple users. This redefinition of value has attracted the attention of management scholars, who have adopted the concept of business models in their attempts to explain value creation in networked markets (Zott & Amit, 2009). However, when explaining value creation, the concept of business models is not only used in the context of the digital economy. For example, Seelos and Mair studied the mechanisms of value creation in the context of deep poverty. They conceptualize a business model as "a set of capabilities configured to achieve value creation that is consistent with strategic economic or social goals". Value creation mechanisms often go beyond what can be created through Schumpeterian innovation, the configuration of value chains (Porter, 2011), the formation of inter-firm strategic networks, or the exploitation of firm-specific core competencies. Value can also be created through a revolutionary business model.

Business models can also play a central role in explaining a company's performance. Afuah and Tucci (2003) propose the business model as a unifying structure to explain

competitive advantage and firm performance and define it as "the way in which a firm builds and uses its resources to provide better value to its customers and makes money in the process". In their view, the nature of the link between business model design and focal firm performance can be analyzed by looking at two different effects: the total value creation potential of the business model design and the ability of the focal firm to appropriate that value. They identify two design themes around which business models can be built: efficiency and novelty. In their empirical work, Zott and Amit consider the business model as an independent variable and link it to firm performance, moderated by the environment.

Business models extend the central ideas of business strategy and its related theoretical traditions. Researchers argue that business models can be a source of competitive advantage distinct from a firm's product market position. state (Christensen, 2001). Scholars have emphasized that business models can play an important role in a company's strategy. Richardson (2008) argues that business models explain how a firm's activities work together to execute its strategy, thus building a bridge between strategy formulation and implementation. Similarly, Casadesus-Masanell and Ricart (2010) argue that the business model is a reflection of the firm's realization strategy. In the strategy literature, research on business models has centered on three main areas: (1) the networked nature of value creation, (2) the relationship between business models and firm performance, and (3) the distinction between business models and other strategic concepts.

The concept of business models is also addressed in the area of innovation and technology management. Two ideas characterize the study. The first is that companies commercialize innovative ideas and technologies through their business models. The second is that business models represent a new body of innovation that complements the traditional body of process, product and organizational innovation and involves new forms of cooperation and collaboration. An important role of business models is to unlock the value potential in new technologies and turn them into market outcomes. Chesbrough and Rosenbloom (2002) detail an extensive case study in which they show how Xerox partially grew by adopting an effective business model to commercialize a technology that was rejected by other leading companies. In the field of technology and innovation management, the business model is seen primarily as a mechanism that links a firm's innovative technology to customer needs or other firm resources (e.g., technology). The business model is conceptually placed between the firm's input resources and market outcomes, and it "fully embodies the organizational and financial 'architecture' of the firm" (Teece, 2010). According to this functionalist view, business models are complementary to technology, but technology is seen as an enabler of the business model rather than part of the concept itself. Neither input resources nor competition in output markets are considered part of the business model concept. Rather, the core logic of a business model revolves around a company's revenues and costs, its value proposition to customers, and the mechanisms for capturing that value. Thus, the business model can be the vehicle for innovation or the subject of innovation.

Zott et al. (2011) proposes at least three concepts that deserve separate consideration: (1) the prototype e-commerce model, (2) the business model as an activity system, and (3) the

business model as a cost/revenue architecture. Each of these different concepts can be fruitfully studied under the general theme of business models and how they relate to each other. This paper wants to analyze the business model of shared e-bike companies based on previous research and explore how to do business better.

2.2 Sharing economy business

In the wake of the 2008 financial crisis, people began to explore new ways of acquiring access to goods, driving the debate on the relationship between the sharing economy and commercial activity (Habibi and Laroche, 2017). Unlike traditional market transactions, sharing economy commercial activities are consumer behaviors that do not aim to transfer ownership (Belk, 2010; Belk, 2014; Weave and Wildeman, 2013). An exploration of the importance of the sharing economy is often inseparable from a focus on the business models that come with it (Gobble, 2017). The sharing economy is an economic act based on an internet platform in which individuals or organizations cede the right to use unused items for a short period of time for the purpose of financial gain. In the 1980s, Kirzner I.M. studied the economic environment of the time and, in response to the negative feelings of the population towards being used as a consumption machine, he proposed that people in other words, the shared nature of a good is worth more than its private nature, and the durable nature of a good is worth more than its new nature.

"The 'sharing economy' was first coined in 1978 by sociologist Marcus Felson and University of Illinois sociology professor Joel Spaeth, who argued that the sharing economy is a process whereby owners of society's idle resources reap economic benefits and recreate value through the act of giving up the use of resources to others. The sharing economy is a process in which the owners of idle resources in society gain economic benefits and recreate value by transferring the use of resources to others. Three new business models have emerged in the sharing economy: the shared cooperative model, the B2C model and the P2P sharing platform model (Santos, 2018). In the process of changing the business models of the sharing economy, different business models exist for different sized cities. Among them, the shared cooperative model and the B2C model are the most numerous and largest models, and are also the most mature business models (Beattie and Smith, 2013). The B2C model is divided into a one-way model and a round-trip model, with the demographic dividend being an important guarantee of economies of scale and profit income, making it more suitable for medium-sized cities. has the largest scale of operation and operational reach, operating internationally. It provides a platform for information exchange between the supply and demand sides at zero marginal cost, offering different services, different fee structures and different network partners for the supply and demand sides and the partner companies, in order to transfer the ownership of goods or services and revitalize the idle resources of society (Bouncken and Reuschl, 2018).

The sharing economy is an O2O network operation model that relies on a third-party Internet information technology platform to temporarily transfer the use of idle resources (goods, services, or money) between scattered individuals, thereby making the best use of them

and sharing resources (Harviainen and Hamari, 2015). Alex Rampel, founder of Trial Pay, introduced the concept and first defined O2O as an online-to-offline (O2O) business model that integrates online payment and offline consumption. He sees the online to offline (O2O) business model as the integration of online payment and offline consumption. Mason and Spring(2011) have used online consumers as a long-term study, concluding that the key platform for people's consumption has now shifted to online. Ariely(2000) found that the main help that O2O could provide was the vast amount of information available for a period of time, which was far more important than the way O2O worked. Zhu, Kraemer and Dedrick (2004) have found that companies taking an O2O approach can access valid data of all kinds. Leng and Parlar (2005) show that the free delivery service that comes with online purchases is the main consideration for consumers to stay on a regular platform. Chen and Chen (2006) have discovered that O2O can be more than a win-win situation. It can even lead to a triple profit for both buyers and sellers and the intermediary platform.

From a business perspective, the importance of exploring the 'sharing economy' is to focus on the business models that come with it (Gobble, 2017). There are many definitions of a business model Wirtz et al. (2016) but it is generally accepted that a business model is a business logic that creates value for a company and its stakeholders, such as customers, in a particular way, thereby creating business and facilitating growth (Amit and Zott, 2001). As sharing is a new way of creating value, the study of business phenomena in the sharing economy is often closely related to the business models of companies and their innovations. Habibi et al. (2016) found that although many business models claim or are referred to as models under the rubric of 'sharing', there are differences between these models and they fall into different categories when assessed in terms of the degree and substance of 'sharing'. Between the extremes of pure sharing and pure commercial transactions, there are business models with varying degrees of sharing, with further examples of Zipcar being closer to the pure commercial exchange end of the spectrum, Couchsurfing closer to the pure sharing end of the spectrum, and Airbnb and Uber falling somewhere in between (Kathan et al., 2016). In addition, existing research shows that most of the new business models in the sharing economy are based on the spread of internet technology (Cohen and Kietzmann, 2014).

Cockayne (2016) argues that sharing is a mechanism that discusses the mechanisms that emerged and enabled them through neoliberal economic practices as well as performance, pointing to the relationship between economic and social intrinsic nature and intrinsic decisions. The sharing economy has led to the creation of new modes of production, consumption, and business operations, and has become an undeniable emerging force in the future development of the global economy. From the perspective of economic ethics, the rise of the sharing economy has significant implications for the growth of social consumption ethics, market competition ethics and social credit ethics. Capital is profit-seeking, and its profit-seeking nature may alienate the idea of the sharing economy and undermine the existing market system and order. Therefore, it is important to correctly understand the business opportunities presented by the sharing economy, explore business models that achieve a fit between the two in terms of market laws and the existing system, and promote the sustainable development of the sharing economy. Combining a supply-side perspective to explore the characteristics of the

sharing economy, it is proposed that the regulatory bodies and regulatory responsibilities of the sharing economy in various sectors should be clarified, a general plan to promote the healthy development of the sharing economy should be formulated, and guidance on the production mechanisms of sharing economy platforms should be strengthened.

Mateo et al. (2016) found a large amount of data in his study indicating that public bicycle sharing systems meet the recreational purpose of users and are more related to weekend leisure trips, while noting that natural topography and surrounding buildings can have an impact on bike-sharing use. The shared mobility model is analyzed in four ways. Firstly, shared mobility achieves a decoupled development of travel demand and the construction of transport facilities, whereas traditional travel demand has to be met in proportion to the development of transport facilities. Secondly, shared mobility carries out systemic innovation and social innovation, while traditional transport cannot solve the problem of the rebound effect caused by the expansion of consumption scale. Thirdly, a shared mobility-oriented transport system has the potential to solve the dilemma of growing urban travel demand with a smaller number of cars per capita. Fourth, the establishment of shared mobility systems must be integrated with public transport systems and shared spaces. It is pointed out that internet travel services have improved the transportation travel experience scenario through data-based means, promoting and changing the original transportation pattern with a new spatio-temporal matching model, providing an important idea to solve the contradiction between the efficiency of traditional intensive transportation supply and discrete transportation demand.

Zhang et al. (2017) point out that public bicycle sharing systems are a viable transportation option that effectively complements existing bus and regional transportation systems, and proposes a dynamic bicycle repositioning method to address the imbalance between commuter travel demand and bicycle inventory at parking stations. There are currently many problems with bike sharing, including insufficient policies and regulations, inadequate sharing credit systems, high investment costs but a need for improved profitability models, and operational challenges leading to low customer satisfaction. The factors that influence the development of shared mobility are grouped into three areas: the human-vehicle relationship, mobility, and the ability to make the urban environment friendly. The human-vehicle relationship refers to the subversion of the relationship between people and transport in shared mobility, with consumers having more of a say in mobile mobility. Mobility refers to the upgraded mobility driven by technology and consumer demand, making the travel experience more diverse and fulfilling. Urban environmental friendliness refers to the fact that the development of shared mobility responds to the requirements of green development and urbanization. The new trends in shared mobility include, firstly, the development of big data and IoT technologies that will drive another upgrade of shared mobility, secondly, the development of shared mobility to bridge the 'last mile' of travel, and finally, a shift in the existing profit model.

2.2.1 Traditional and sharing economy business model operating logic

Kanter (2012) describes six aspects of institutional logic that fundamentally change leadership and corporate behavior. The results of the study show that business models undergo

constant change and that sustainability plays a central role both internally and externally. The results obtained enable a deeper understanding of the motivational aspects and drivers needed in the development of sustainable business models and serve as a solid basis for further research in the field. The traditional business model focuses on integrating one's own factors of production and selling the services or products produced for a profit. In this logic, the value chain plays a key role. The components of a traditional business model are numerous and inextricably linked, including audience segmentation, value propositions and profit sources.

With the rapid development of the Internet, e-commerce has rapidly emerged and given rise to countless branches, of which the O2O business model is the leading one. It is also the main representative business model in the sharing economy. With the help of information technology, the O2O business model brings together offline resources and online demand. The O2O business model brings together offline resources and online demanders, with both parties using the internet to gain a precise and comprehensive understanding of each other's information. At the same time, the O2O platform can also obtain first-hand user profiles in the process of communication between the two parties, so that relevant information can be accurately pushed. The business model created by the sharing economy is far more dynamic and interactive than the traditional business model. Compared to traditional business models, the sharing economy shifts the focus of its operational logic from product to consumer, and its profit model is more focused on value creation. The profitability model is also more focused on value creation, and the user reviews accumulated by businesses in the course of their operations become more and more important.

2.2.2 Sharing economy business model advantages

Frequency analysis, reliability/validity analysis, appropriateness analysis, and path analysis were conducted on 522 subjects active in the sharing economy service community using statistical techniques. Finally, the shared value of sharing economy companies had a significant effect on the characteristic competitive advantage, the shared value had a significant effect on the behavioral intention, and the characteristic competitive advantage had a significant effect on the behavioral intention (Kang et al., 2018). The traditional business model necessarily requires an intermediate link to close the loop, and this intermediate link. The presence of this intermediary also increases the price of the object being traded, and can also lead to a significant increase in transaction costs for both buyers and sellers. The consequence is that the whole chain of business will have to be closed. As a result, the cost of the whole chain increases and the final product is sold at a price significantly higher than the price at the time of production.

In contrast, the sharing economy business model has the following advantages.

(1) Reuse of unused resources

In traditional business models, new resources are traded and sellers are required to continuously produce new products or services to attract a large audience. The sharing economy, on the other hand, deals with resources that already exist and are temporarily unused, and as a result, the value of the resources is magnified.

(2) Low cost.

Benefiting from the general trend of disintermediation, there are no intermediaries in the sharing economy transaction process to earn the difference in price. The buyer no longer has to pay for the intermediary's presence, and the total cost of the transaction is significantly reduced. The total cost of the transaction is significantly reduced.

(3) Diversification of goods.

Traditional business models deal with standard products and services that are known to people. Producers need to plan their own production in order to make a profit, so the shape and content of the product is determined by the producer. In the sharing economy, however, the merchant does not have to be a traditional business, so what is produced is more flexible and fresher, and has a diverse character.

(4) Low prices

Compared to the purchase of a brand new good or service, the temporary transfer of the right to use an unused resource is inexpensive. In the various business models of the sharing economy, buyers and sellers can communicate directly, prices are relatively more transparent and thus prices can be reduced in one step, and consumers are more likely to be attracted.

(5) Sustainable development

The sharing of unused goods, as promoted by the sharing economy, is in line with the concept of sustainable development in China. As the use of unused resources does not require new resources to be consumed, it reduces the consumption of resources and avoids the waste of resources and environmental pressure caused by the abandonment of unwanted resources, thus contributing to the progress of sustainable development in China.

2.3 Value chain-based cost management

The concept of value chain was first proposed by the book "Competitive Advantage" by Porter (2011), a professor at Harvard University in the U.S. Porter believes that every enterprise is in a collection of business activities. He used the value chain as a strategic tool that could integrate various competitive advantages of a company and obtain a competitive approach, allowing the company to achieve sustainable development. Before the birth of the value chain theory, companies often focused on their own internal management and neglected the value of each link in their business activities. The value chain of an enterprise is shown in the figure. The value activities of an enterprise are composed of two parts, one of which is the basic activities, i.e., consisting of internal logistics, generation operations, external post-production, marketing and sales, and services. The other part is the auxiliary activity, which is composed of elements such as enterprise infrastructure, human resource management, technology development, and procurement, etc. The relevant links are incorporated into the daily business management of the enterprise through the value chain.

Shank et al. (1993) discussed the strategic cost management in value chain. Value chain strategic cost management is the organic combination of value chain and cost management, that is, with the value chain as the core, enterprises find the potential factors of cost increase through cost driver analysis and other methods, analyze the costs and benefits of each link in the value chain, and analyze the advantages and disadvantages of the industry in which the enterprise is located from the overall strategy to effectively achieve overall cost control and realize the value chain optimization goal of the enterprise, so as to finally enhance the core competitiveness of the enterprise. Shank(1996) argues that assessing potential investments in new manufacturing technologies is a very difficult management challenge. Strategic management accounting, strategic cost management and non-financial performance measurement are recently proposed approaches as a means to overcome the limitations of traditional management accounting systems in dealing with strategic issues. Rangone (1997) aims to facilitate the integration between management accounting and strategy. Ewert et al. (1999) provides a theoretical analysis of one of the most prominent approaches in strategic management accounting, namely, target costing. Generally speaking, according to the space of value activities and internal and external synergies, value chain cost management is divided into three categories.

① Cost management of internal value chain, i.e., control of cost items related to the three main links of product design, production, and sales from the internal operation of the enterprise. By analyzing and optimizing the internal value chain by stage, it helps to improve the cost advantage of the enterprise competition. Traditional cost management usually ignores the cost control in the design and sales stages.

② Cost management of vertical value chain, that is, from the perspective of the industry, the control of relevant cost items in the process from upstream raw materials to downstream users. Through the analysis of vertical value chain, enterprises can clarify their strategic positioning, gain insight into the profit distribution of related enterprises in the value chain and the market position of upstream and downstream enterprises, and further contribute to the possibility of integrating upstream and downstream enterprises or establishing strategic alliances with them.

③ Cost management of horizontal value chain, that is, from the perspective of competition, observe the value activities of different producers for similar products, and then improve its own cost structure. Competitors are an important module in the external value chain, and analyzing competitors' value chain can make enterprises clarify their own position in the market competition, recognize their own strengths and weaknesses, so as to realize the adjustment and restructuring of their own value chain by taking advantage of their strengths and avoiding their weaknesses.

2.4 Strategic business management theory

Hill et al. (2014) states that "Strategic management is the process by which an organization

interacts internally with the outside and the corresponding structural changes within the organization that result from adapting to external changes." Corporate strategy is the method of guiding the enterprise to get a good development and to obtain the maximum benefit. Corporate strategy has four basic characteristics: basic, long-term, strategic, and overall, and its specific meaning is to focus on the long-term development of the enterprise through a combination of strategies, and to plan all corporate activities and behaviors for the long-term overall benefit of the enterprise in a comprehensive manner. Strategic management is the process of analysis, research, forecasting, planning and implementation to achieve profitability in the development of an enterprise.

Schwaninger (1986) aims to apply the latest general state of strategic management theory to the specific requirements of the tourism sector. From a strategic management perspective Sharma et al. (1997), a new set of objectives is outlined for family business research. Strategic management must be carried out in response to changes in the industry, to discover the rules of the industry and to make dynamic adjustments in response to new developments, including forecasting the direction and prospects of the industry, to improve the company's ability to adapt to and create changes in the industry and to improve efficiency. Strategic management objectives need to be as detailed as possible, with long-term and near-term objectives clearly defined and in line with the company's current business habits, in order to make strategic management feasible. At the same time, activities that do not match the strength of the enterprise and the industry environment should be eliminated or adjusted, and the strict implementation of strategic management should be ensured.

Seeking to advance the understanding of coherence, Sabherwal et al. (2001) examine the dynamics of coherence through the strategy/structure interaction in the business and IS domains. Strategy in e-commerce is far more important than technology, and strategy in e-commerce is important in today's dynamic competitive environment. Wang et. al.(2007) discusses its potential uses for e-commerce. Pospíšil et. al. (2012) described a possible way to draft a strategic concept of road management transformation. This paper synthesizes the empirical and theoretical literature on the three main streams of thought in strategic management with strategic marketing to develop an integrated theoretically based conceptual framework that links marketing to business performance (Morgan, 2012). Common business strategy analysis tools include PEST analysis, which is a holistic analysis of the environment in which a company exists from four perspectives: political, economic, social, and technological. PEST helps companies analyze the external macro environment, grasp it in general and identify the adverse effects of these factors on the development objectives and strategy formulation of the company.

The SWOT model is a situational analysis in which the main internal strengths and weaknesses, as well as the external opportunities and threats that are closely related to the subject of study are listed in a survey and arranged in the form of a matrix to match the various factors with each other and to draw a series of decision-making conclusions. Using this method, a comprehensive, systematic, and accurate study of the subject's situation can be carried out, and the results can be used to formulate appropriate development strategies, plans and

countermeasures.

2.5 Business model innovation theory

Innovation as a theory can be traced back to Harvard professor Schumpeter's Introduction to Economic Development (Schumpeter, 2017). In his work, Schumpeter proposed that innovation is the introduction of a new combination of new factors of production and conditions of production into the production system. "According to Schumpeter, "By innovation is meant the creation of a recombination of factors of production, the introduction into the system of production of a new combination of factors and conditions of production which has never existed before, in order to achieve a new combination of factors or conditions of production which is aimed at gaining potential profit, i.e., maximizing excess profits." "He also argued that there are multiple cycles due to the existence of multiple innovative activities in the economy, and that different innovative activities take different lengths of time and have different scopes and degrees of impact on the economy." This passage of his was later summarized into five innovations, corresponding in turn to product innovation, technological innovation, market innovation, resource allocation innovation and organizational innovation, which became the new generation of economic theory of innovation.

Business model innovation is an innovative activity driven by certain dynamics. In business model innovation research, many scholars have more or less talked about the dynamics of business model innovation in three aspects: new technology marketization driving force, market environment pressure, and market opportunity pulling force. Here we sort out and summarize the research on business model innovation dynamics in the existing literature.

For new technologies to be transformed into market-adapted products and services, appropriate business models must be applied. Therefore, marketization of new technologies is one of the driving forces of business model innovation. Christensen (2013) studied the marketization of breakthrough technologies. He argues that breakthrough technology is a more radical technology innovation than persistent technology, and it is not feasible to market it in the original business model, and a new business model must be adopted to enable the marketability of products using breakthrough technology. At this point, the innovation of business model is for the marketization of the new technology. Gambardella and McGahan (2010) examine technology licensing by biopharmaceutical firms as an example. They argue that upstream firms develop application-specific technologies and can only sell them to a limited number of downstream firms, limiting the profits of upstream technology innovators and losing bargaining power in negotiations. To escape this disadvantage, upstream companies invest in the development of technologies with universal applicability. To enable the marketability of such technologies, it is necessary to innovate the original business model. While the marketability of new technologies certainly depends on an innovative business model, it is undeniable that the innovation of business models of technology companies is predicated on technological innovation.

The business environment is rapidly changing and highly unstable, and in order to adapt to the changes in the business environment, the business model of a company must also be in a constant state of innovation. Malhotra (2002) argues that the business models of traditional organizations are driven by pre-categorized plans and purposes to ensure optimization and efficiency based on consistency, centralization, and dependency. In order to adapt to a dynamic, discontinuous, and radically changing business environment, business model innovation is necessary. Sosna et al. (2010) also studied the driving forces of business model innovation. They argue that the sustainability of a given business model is uncertain and that changes in the market (when new innovators, competitors and rules appear) can make existing business models obsolete or unprofitable. Therefore, in the long run, continuous business model innovation is an important capability for every company. At this time, business model innovation is mainly carried out under the pressure of business environment changes, and although many scholars agree with this, the intrinsic mechanism of business environment influencing business model innovation is still not effectively explained.

Business model innovation is sometimes undertaken to capture a specific market opportunity, and Lindgardt et al. (2009) argue that business model innovation can help firms identify specific business opportunities in times of economic downturn. They conclude from previous studies that companies that have performed well during economic downturns have used the opportunities provided by the crisis to rejuvenate themselves, not just by financial or operational innovations. They further conclude that in times of economic crisis, it is easier to achieve a consistent perception of bold moves toward business model innovation within a company. Tapping into market opportunities during this particular period better explains the motivation of firms' business model innovation behavior, but whether intra-firm agreement on business model innovation behavior is more likely to be achieved in times of economic crisis remains to be further tested.

Business model as an independent research field has attracted extensive attention from scholars. As an important direction of business model research, business model innovation research should receive more attention. Although scholars have made many important achievements in business model innovation research, business model innovation contains many aspects of enterprises and is a complex system project, and researchers often start their research on it from a certain field they are interested in and good at, which enriches the research perspective of business model innovation, but causes business model innovation research to appear many "silos" in business model innovation research, and many studies lack the support of follow-up studies. The paper argues that a universal business model innovation analysis framework should be constructed, and business model innovation-related research should be conducted under the guidance of the business model innovation analysis framework.

The first is the study of the drivers of business model innovation. The main purpose of this research is to reveal the various driving factors of business model innovation in order to clarify and strengthen the role of these factors, and then promote the implementation of business model innovation. While clarifying the core purpose of business model innovation -

gaining profit, the various factors driving business model innovation can be comprehensively revealed from the internal and external environment of the enterprise.

Secondly, business model innovation process is the core content of business model innovation. Most of the existing research on business model innovation pathways are generalized in a general sense rather than specific methods of business model innovation, which has certain guiding significance for enterprises but lacks operability. Future research can start from industry analysis and study the business model innovation pathways and steps of different industries, which is more relevant and operable. The research on the implementation of business model innovation should focus on the research on the timing of business model innovation and the specific implementation steps.

Another key issue is the performance evaluation of business model innovation. The effect of business model innovation needs to be measured by a corresponding evaluation index system, however, there is little research in this area and no mature There is no mature evaluation system for business model innovation.

Finally, business model innovation will encounter various internal and external resistances, and how to overcome these resistances is the main content of this part of the study. In the author's opinion, companies can overcome the cognitive resistance through continuous organizational and personal learning and full understanding of the importance of business model innovation to the company. Resistance in organizational structure and resource allocation can be overcome through rational institutional and resource arrangements. By emphasizing continuous innovation and strengthening organizational flexibility and dynamic adaptability, business model innovation can become the norm for enterprises.

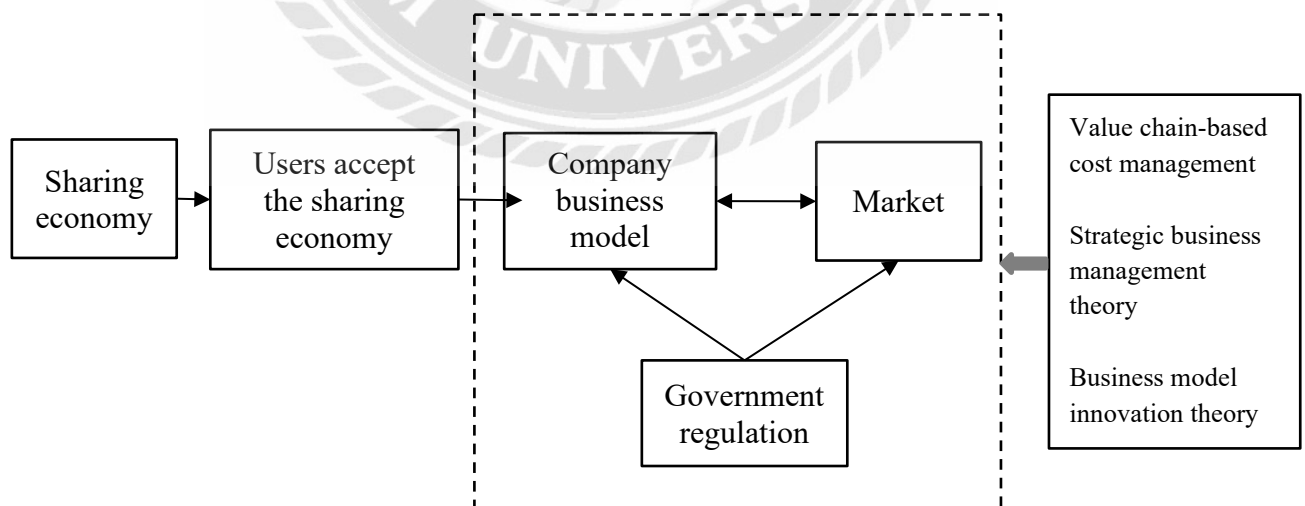


Figure 2.1 Theoretical Framework Diagram

3. RESEARCH METHOD

This paper will analyze the shared electric bicycle industry, and analyze the upstream and downstream of the industry chain, and select a typical enterprise, Hello Travel, to study the development model of the enterprise, combining the current situation of relevant research and relevant theories.

3.1 Main research method

The study uses qualitative research methods to analyze the development trend of electric bicycles and related business operation models. This paper uses a process-tracing approach in obtaining macro and micro shared e-bike market data, describing, explaining, and predicting the object of study and drawing conclusions through logical inference and related analysis.

The literature review research method is employed in this study to comprehensively examine and synthesize existing academic literature. The initial step involves conducting an extensive review of relevant literature to establish a solid conceptual foundation. To execute this literature review, the keywords "sharing economy," "O2O," and "business model" were utilized for searches on Google Scholar and Web of Science. Supplementary keywords such as "travel" and "shared electric bicycle" were incorporated as well. Drawing from the literature, a thorough analysis, research, and synthesis were conducted, combined with pertinent monographs and the latest industry research reports. This comprehensive approach aims to establish a systematic understanding of the sharing economy and business models adopted by enterprises. By utilizing a rigorous academic style, this paper contributes to the body of knowledge in the field, providing valuable insights for both academia and practitioners.

This research employs a case analysis method to undertake a comprehensive and meticulous study of representative electric bicycle companies. By integrating global research reports and specific case studies released by authoritative institutions, the analysis conducts a comparative examination of the business model characteristics exhibited by Chinese sharing e-bicycle enterprises. The primary objective is to discern weaknesses and shortcomings within these models, facilitating the summarization of prospects and development paths for business models within the Chinese sharing e-bicycle industry. Moreover, the study aims to furnish pertinent enterprises and government entities with appropriate recommendations. The analysis synthesizes empirical evidence, industry insights, and scholarly research, thereby delivering valuable insights and actionable recommendations for stakeholders within the sharing e-bicycle sector. The academic style employed ensures the paper's rigor and scholarly contribution to the existing body of knowledge in the field.

The paper will use the PEST model to conduct a multi-dimensional analysis of the macro environment in which shared e-bike companies are located, and use the SWOT model to make a side-by-side comparison of shared e-bike companies and clarify their strengths and weaknesses. It will also analyze the competition within the industry through Porter's Five

Forces model. The paper will also analyze the whole shared e-bike industry chain and illustrate the shared e-bike companies in the whole industry chain.

PEST analysis is used in various way. Ha et. al. (2008) aims to review and assess the vision, objectives and strategic framework of e-governance in Singapore. Halal logistics is a global business and Talib et al. (2014) contribution is to analyze the general environment of halal logistics in Malaysia by using PEST analysis. Barbara et al.(2017) highlighted the main challenges by using political, economic, social and technological (PEST) analysis. Ren et al. (2020) based on the PEST analysis, proposed an improved method of localizing Costco's paid membership revenue model in China, i.e., applying it to Chinese convenience stores. PEST analysis is a model for analyzing the macro environment of a company, where P is political, E is economic, S is social and T is technological. Through this four-pronged PEST analysis, the current situation and development trend of the macro environment can be comprehensively weighed from all aspects to guide the company's strategy formulation, which is very important for the company to seize development opportunities and avoid risks.

- (1) The political environment refers to the political system, policies and guidelines of the country or region that have a great impact on the operation of the company, especially long-term investment.
- (2) Economic environment refers to the macroeconomic policies, internal and external economic environment, social and economic development level, and other factors that need to be considered for the formulation of the enterprise's strategy.
- (3) The social environment refers to the cultural traditions, values, habits, and social conditions of the society in which the enterprise is located.
- (4) Technological environment refers to national or regional technological policies, the level of technological development and the ability to develop new products, etc., which are highly relevant to the enterprise's business.

Table 3.1 PEST analysis factors

PEST factor	Political	Economic	Social	Technological
	Environmental Protection System	Economic growth	Income distribution	Government research expenditure
	Tax policy	Interest rates and monetary policy	Demographics, population growth and age distribution	Industry and Technology Focus

Specific details	Domestic laws	Government support	Labor and social mobility	Innovations and Technology Development
	Contract enforcement and consumer protection law	Unemployment policy	Lifestyle changes	Technology transfer rates
	Government attitude	Taxation	Occupational and leisure attitudes	Speed of technological change and life cycle
	Competition rules	Exchange rates	Education	Energy use and costs
	Political stability	Inflation rate	Trends and fashions	Information Technology Change
	Safety regulations	The stage of the business cycle	Health awareness, social welfare, and security	The transformation of the Internet
	Employment Law	Consumer Confidence	Living Conditions	Mobile Technology Change

SWOT analysis, also known as TOWS analysis and Dawes matrix, is a way for companies to list their strengths, weaknesses, opportunities, and threats in the development process in relation to their own development. The analysis is based on its own situation and position in the market to analyze the marketing strategy, list the opportunities and risks, identify the strengths and weaknesses in the marketing strategy, so as to guide the enterprise in the future development process, the marketing strategy, development direction to make appropriate adjustments to enhance market competitiveness and the enterprise's own economic efficiency.

Strengths and weaknesses analysis. The strengths and weaknesses of a company in its development process can help it to better analyze its current situation. One of the strengths is the size of the capital. The continuous development of a business to accumulate a larger scale of assets helps it to occupy the competitive high ground. The second advantage is cost. When a business has lower production costs, the profit margin is greater. One of the disadvantages is personnel management. Enterprises have certain problems in hiring, training, managing, and using personnel, which suppresses staff motivation and reduces loyalty to the enterprise, thus putting them at a competitive disadvantage. The second disadvantage is that the level of publicity work is not high, lack of brand influence, and therefore at a disadvantage in the competition. In the process of development, we must strive to improve the visibility of the company, increase the publicity of the corporate brand, and improve the ability to develop new products. If the research and development does not move forward, the company will not be

able to gain a foothold in the cruel competition.

Opportunity and risk analysis. With the continuous development of the socialist market economy, China's economic strength has undergone radical changes. At the same time, with the support of the relevant national system, enterprises benefit from preferential policies to promote their own development and gain opportunities from national policies. In developing their marketing strategies, enterprises are threatened by their own poor functioning, external shocks, inadequate market development and market instability. The limited ability to tap into potential consumer groups and insufficient efforts to develop the domestic market also affect the effectiveness and survival of enterprises.

Grundy (2006) considers Porter's five forces model theory to be the most important theoretical achievement of the strategic management positioning school, which has been widely used in various fields since its introduction in the early 1980s. The five forces model suggests that the survival of a company in the market is determined by five forces, namely, the competitive ability of existing competitors in the same industry, the ability of potential competitors to enter, the threat of substitutes, the bargaining power of suppliers, and the bargaining power of buyers. The five forces model has its advantages and wide applicability in strategic management, but the qualitative analysis makes it possible to obtain three general strategies, namely, cost advantage, product differentiation and centralization, by analyzing the five forces affecting competition. The five forces model has its advantages and wide applicability in strategic management, but the qualitative analysis makes its visualization and data presentation capability insufficient, and the relative differences of the five forces are not well presented. Porter's Five Forces analysis is a micro-environmental analysis of the external environment and is used to analyze the competitive landscape of companies in an industry and the relationship between that industry and other industries. The five forces model brings together a large number of different factors in a simple model to analyses the basic competitive dynamics of an industry. The Five Forces model identifies five main sources of competition and the formulation of a viable strategy should first include the identification and evaluation of these five forces, the characteristics and importance of which vary from industry to industry and from company to company.

The bargaining power of suppliers is mainly reflected by the increase of factor prices and the decrease of unit value quality on the supply side. This affects the profitability and competitiveness of existing companies in the industry. When the value of a factor provided by a supplier is value of the elements provided by the supplier accounts for a large proportion of the total cost of the buyer's product, is very important for the buyer's production process, and can influence the quality of the buyer's product to a large extent. The potential bargaining power of the supplier is high when the value of the elements provided by the supplier accounts for a large proportion of the total cost of the buyer's product, is important to the buyer's production process, and can influence the quality of the buyer's product to a large extent.

The bargaining power of buyers can be achieved by the buyers' price pressure and the demand to improve the quality of products or services, and affect the profitability of existing

enterprises in the industry. When the number of buyers is small, but the volume of each buyer is large, the seller is small, the product is standardized, and there are more homogeneous products in the market, the buyer can have a strong bargaining power in any case.

The threat of new entrants is that they will not only seize the market, but also seize the limited resources. Ultimately, this leads to a reduction in the profitability of existing firms and even threatens their survival. The severity of the threat of competitive entry depends on the size of the barriers to entry and the expected response of existing firms to the entrant. According to Porter, any firm in the industry that uses market expansion strategies, product expansion strategies, backward integration, forward integration, or has special capabilities or assets for sale, etc., can be considered as potential competitors.

According to Porter, the threat of substitution is due to the competitive behavior of two firms in different industries that produce products that are substitutes for each other, and this competition from substitutes can affect the competitive strategies of existing firms in the industry in various forms. First, the increase in the price and profit potential of the existing enterprises' products will be limited by the existence of substitutes that are easily accepted by users. Second, the intrusion of substitute producers makes it necessary for the existing enterprises to improve the quality of their products, or to reduce their prices by lowering costs, or to make their products unique, otherwise their sales and profit growth goals may be thwarted. The intensity of competition, influenced by the level of switching costs of product buyers. In short, the lower the price of substitutes, the better the quality, and the lower the switching costs of users, the stronger the competitive pressure it can generate and the intensity of this competitive pressure from substitute producers can be specifically described by examining the growth rate of sales of substitutes, the capacity and profitability expansion of substitute manufacturers.

Porter believes that the competition of existing competitors in the industry is due to the fact that most of the companies in the industry are closely linked to each other's interests, and the competitive strategy of each company, as part of the overall strategy of the company, aims to make its own company gain advantages over its competitors, so the implementation of the phenomenon of conflict and confrontation will inevitably arise, and these conflicts and confrontations constitute the competition between existing companies. These conflicts and confrontations constitute the competition among existing companies. The intensity of competition among existing players can be determined by the number of players in the industry and their degree of monopoly. The homogeneity of competitors, the strategic value of the industry's products, and the level of exit barriers are all factors that influence the intensity of competition.

The status and combined intensity of these five basic competitive forces determine the intensity of competition in the industry, and thus determine the ultimate profit potential in the industry and the degree of capital flow to the industry, which ultimately determines whether the company has the ability to maintain high returns. Porter proposed that "an industry, whether domestic or international, whether producing products or providing services, can use these five

forces to explain its law of competition".

3.2 Introduction of company and sharing economy business model

3.2.1 Introduction of problem study company

Founded in Shanghai in September 2016, Hello Travel started as a bicycle-sharing business and has evolved into a diverse travel and local life service platform that includes two-wheeled travel, four-wheeled travel, hospitality, and in-store services. The company provides users with convenient mobility and better local services through the use of digital technology.

According to the official website of Hello Travel, Hello Travel has already established a presence in more than 400 cities, with nearly 500 million registered users, including millions of university students. The cumulative distance ridden by users has exceeded 18 billion kilometers, saving a cumulative 500,000 tons of carbon emissions. As of December 2020, the Hello Travel app is the third largest local services platform in China by transaction volume, and one of the most active local services platforms in China by average transaction volume of annual transaction users.

In terms of vehicle development, Hello Travel polishes its end-manufactured shared e-bike models through constant iterative technological innovation. The shared electric bicycle adopts a vacuum integrated foam cushion for effective shock absorption; a full aluminum alloy frame, which is not only lightweight but also effective against corrosion; solar panels, which guarantee real-time communication between the smart lock and the operation and maintenance platform; the integration of the smart lock and the back-end system of the shared electric bicycle equipped with a positioning chip. The HL bicycle is equipped with a positioning chip to integrate with the backend system, with GPS, base station and WIFI multiple positioning, and the unlocking response time can be controlled within 1 second.

The business unit of Hello Travel is mainly composed of the headquarters middle office and regional departments, in which the headquarters middle office includes the operation middle office, product management, user operation, operation management analysis and other functions; Hello Travel has 10 regional ground teams, such as the South Region, the West Region, the North Region, the Yellow River Region and the Great Wall Region. HL has 10 regional ground teams, such as the South Region, the West Region, the North Region, the Yellow River Region, and the Great Wall Region, which are responsible for the daily management of the city end.

There are three main business models for the Hello Travel business: direct, affiliate and franchise agency. Typically, the direct management model is used in most regions of the country, while indirectly, the affiliate or franchise model is used in cities that lack market access or have high management costs.

Under the direct mode, Hello Travel mainly provides vehicle rental and maintenance services. Users can use the service through the Hello Travel app or applet, find nearby vehicles available in real time and scan the QR code on the body to use the service. There are usually two ways for users to pay: (1) Pay-per-use: the user signs an electronic agreement with the company in advance and the user can choose to pay on a single time basis. (2) Monthly card payment: This is usually a subscription model, subdivided into a limited-ride card and an unlimited-ride card. The limited-ride card is generally valid for 7 to 30 days, while the unlimited-ride card is generally valid for 1 to 12 months.

In the affiliate model, Hello Travel provides vehicle rental services and local affiliates are responsible for vehicle placement, dispatching and maintenance services. Affiliate areas are mostly in cities where it is not cost effective for the company to outsource the operation and maintenance of the vehicles to a third-party service provider in the designated area. The user-side path to accessing and paying for riding services is the same as the direct model. In the franchise model, the franchisee is responsible for a series of local services such as leasing, deployment, dispatching and maintenance of Hello Travel in its territory; Hello Travel only provides platform services and only receives a certain percentage of the transaction volume. The user-side access to cycling services and the form of payment are the same as in the direct-operated model.

3.2.2 Sharing economy business model drivers

3.2.2.1 Reuse of unused resources

Idle resources are what the sharing economy shares, and why it is called sharing. Due to the scarcity of resources makes it difficult for people to get what they want in time, while at the same time human desire is infinite. At the same time, human desire is infinite, so there is always more than enough to go around. The sharing economy takes unused resources and temporarily gives them up to those who need them, thus enabling reuse. The sharing economy makes it possible to reuse unused resources, thus satisfying both the demand for profit on the supply side and the temporary need for material or services on the demand side. It also allows the object of the transaction to be used to its full potential and to achieve savings.

3.2.2.2 Social requirements

People are more inclined to a community-based lifestyle and therefore have a greater need for social interaction, especially in large, densely populated cities. This is particularly true in large, densely populated cities. This is particularly true in large, densely populated cities, where socializing meets the need to communicate and to gain access to information from all kinds of people. This is particularly true in large, densely populated cities. In the sharing economy, the importance of social interaction is further realized. In the sharing economy, the importance of social interaction is further realized. This not only reduces the cost of communication, but also increases the speed of communication. This not only reduces the cost of communication, but also increases the speed of communication, which is a major factor in promoting consumption.

3.2.2.3 Overconsumption

Due to the infinite nature of human desire, people are always willing to buy more and more, leading to an increase in the amount of unused goods. In a country with a large population such as China, the problem of unused goods is further amplified by the high population density, which makes it easier for people to not have time to take care of all the goods. However, the excess of unused items also provides a solid foundation for the sharing economy.

3.2.2.4 Technological innovation

Innovation is an issue that must be addressed when companies want to grow in the long term. In the O2O platform, innovation is mainly in the matching of supply and demand and the corresponding security solutions. O2O platforms need to deliver information between supply and demand in a fast and secure manner. It is also necessary to strengthen the protection of the merchants and individuals who trade on the platform. In the digital age, the only way to ensure sustainable development is to ensure this.

3.2.2.5 Network dependency

The sharing economy is born and driven by the Internet, which is an efficient and accurate way of handling data. Thanks to the Internet's efficient and accurate handling of data, platforms are able to communicate all kinds of information to all parties in an accurate and effective manner. A typical online payment platform, Alipay, was able to expand its business thanks to the Internet. Alipay, a typical online payment platform, has been able to expand its business through the Internet.

3.2.2.6 Regulatory mechanism

The variety of business models practiced by many companies in the sharing economy, as opposed to the monotonous business models adopted by most traditional companies in the past, also raises difficult regulatory issues. Transactions in the sharing economy are driven by trust between two parties, with the credit system as its fundamental strength. As this business model is still in its infancy, most of the relevant laws and regulations are still in their infancy. The self-regulation of platforms has become an important part of the sharing economy, as most of the relevant laws and regulations are still in their infancy. Only when fairness is guaranteed will the economy be able to develop.

3.2.2.7 Sharing economy business model industrial value chain subjects

The sharing economy has evolved over several years and has now developed a value chain worth studying. There are three main players in this value chain, the supply and demand sides as well as the enterprises themselves.

In any business model, both supply and demand are the primary and necessary actors. In the context of the sharing economy studied in this paper, the roles of supply and demand can

rotate dynamically, and a single supplier and demander on one platform can also be a supplier and demander on other platforms. These suppliers and demanders can be individuals, organizations, or enterprises. In the sharing economy, these suppliers and demanders do not have to communicate with each other through intermediary platforms, thus reducing communication costs and accelerating transaction efficiency.

In the sharing economy, O2O platforms are the backbone of the economy. Unlike the traditional business model of intermediary platforms, O2O platforms are more than intermediaries in that they need to update data on all parties and quickly match supply and demand. Simply put, the O2O process is that the supplier of unused items posts information on the O2O platform, and the O2O platform uses an algorithmic mechanism to match the information posted by the supplier with someone who has a need for the unused resource, i.e., through a supply and demand matching process. The disintermediated O2O platform reduces the cost of information transfer and accelerates the efficiency of transactions, which is a representative feature of the sharing economy.

3.2.3 Sharing economy profit model

3.2.3.1 Profit point

Profit points are the products and services offered by a company based on a value proposition that benefits the company, its customers, and even other stakeholders by making them aware of the company's value proposition. The point of profit is where a company provides products or services that can bring profit to the company. Creating value for the company by meeting the diverse needs of different customer groups and increasing satisfaction by improving the competitiveness of the company are two important features of a high-quality point of profit. Therefore, designing products and services from the perspective of user needs is the only way to choose a good quality profit point for the company itself.

3.2.3.2 Objects of value

The value object is the target group of customers of the company. Only if the company provides its customers with products and services that meet their needs, satisfaction and loyalty will it be able to gain loyal customers and thus realize the profitability obtained from the value object.

3.2.3.3 Profit leverage

Profit leverage is the way in which a company creates value and delivers services and products to its customers, and it is only when a company has a core business that it is competitive and can earn excess profits.

3.2.3.4 Value proposition

A value proposition is a means of gaining a competitive advantage and maintaining its leading position in the competition that is unique to a company and has characteristics that cannot be easily imitated or substituted, thus forming a barrier to prevent imitation or substitution by competitors and, for the company, contributing to the consolidation of its competitive position and its rightful profitability.

3.2.4 Risk control for sharing economy business models

3.2.4.1 Information security risk control

Currently, the sharing economy has become an important way for micro-entities to participate in products as well as services. For example, residents place their assets on the market through the internet to obtain higher returns from their ownership. However, the development of the sharing economy has been affected by the nature of information technology, which has resulted in information security vulnerabilities such as virtual accounts, opaque information, system failures and proxy. The most effective and straightforward way of avoiding the infringement of customers' privacy and protecting their creditworthiness is to develop a comprehensive and multi-faceted credit security mechanism, such as fingerprinting, real-name authentication and face recognition.

3.2.4.2 Industry monopoly risk control

In the sharing economy, there is a high probability that marginal costs will be reduced to zero, and that the scale effect will continue to manifest itself. The sharing economy tends to be better in terms of consumer experience, demand matching and supply of services, thus constituting a self-reinforcing ecosystem with significant exclusivity and substantial barriers for first-time entrants, i.e., a monopoly. Profit takes a back seat to the scale, opportunities and flows required by the sharing economy, but when the owner has a clear dominant position or even a monopoly in the industry, the monopolist will have some control over prices, or even differential pricing, allowing the monopolist to reap excessive monopoly profits. In this case, the power to determine the structure of the transaction and the relationship is mainly in the hands of the sharing economy platform, for example, the fee set by the sharing platform for the demand side of the service and the payment standard set by the sharing platform for the supply side of the service are both unidirectional, which will result in the platform charging higher fees for the demand side and subsidizing the supply side. This is highly controversial in terms of pricing and fairness of competition. Learning to avoid monopoly risk and developing a long-term strategic plan in the ever-changing sharing economy is therefore a key concern for sharing companies today.

4. CASE ANALYSIS AND RESULTS

4.1 Chinese shared e-bicycle market analysis

After the promulgation and implementation of the new national standard, the regulatory system for electric bicycles gradually matured and shared electric bicycle products received regulatory permission. Average daily demand for over 700 million electric bicycle trips in China. From 2017 to 2020, the number of shared electric bicycles launched in China increased significantly, from 175,000 to 1,157,000, with a CAGR of 105.4%. million units, with a compound annual growth rate of 105.4%.

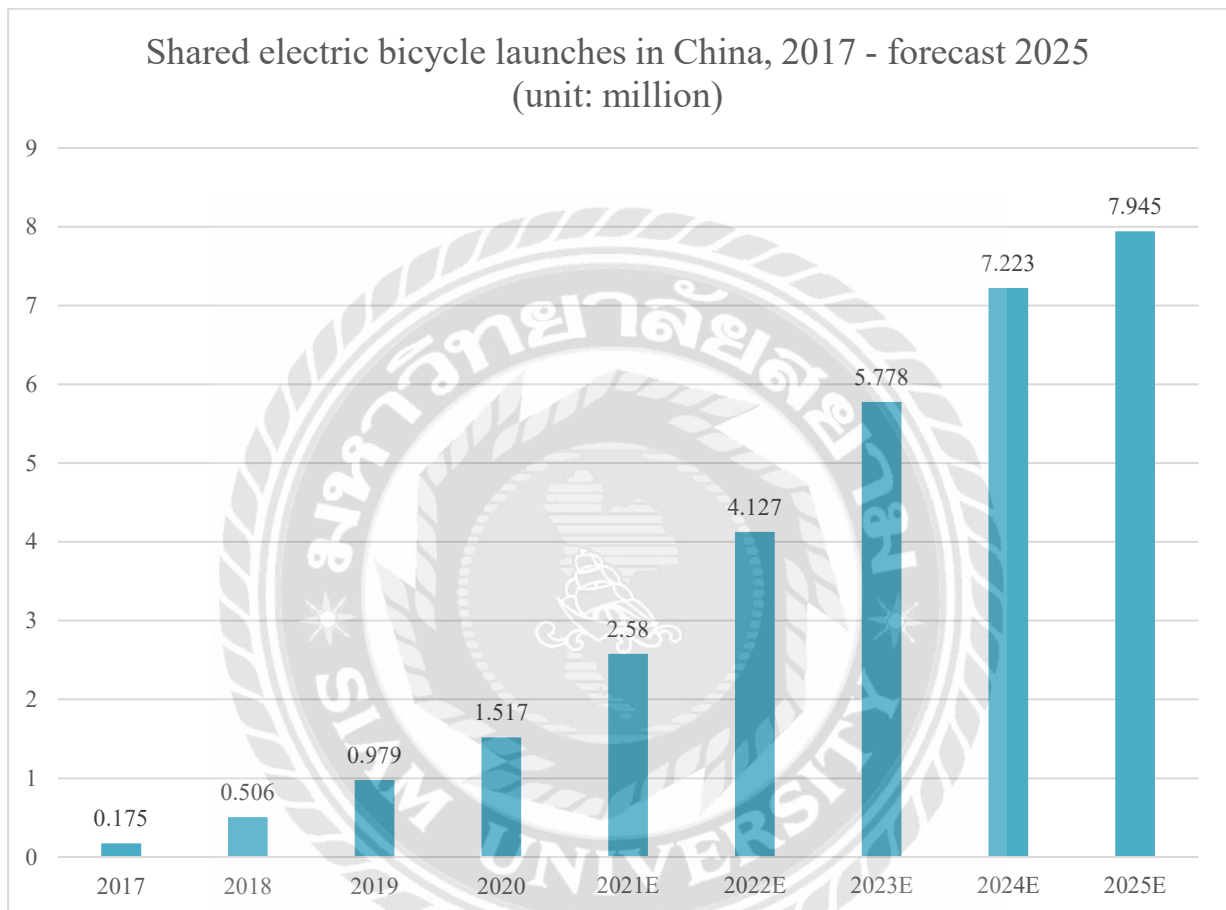


Figure 4.1 Shared electric bicycle launches in China, 2017 - 2025 forecast (unit: million)
Data source: LeadLeo Research Institute (<https://www.leadleo.com/>)

In 2020, the market penetration rate of shared e-bikes in China is still low and the industry is in the early stages of expansion. According to the agreements signed between the head companies and e-bike manufacturers, the 2021-2022, shared electric bicycle head companies Qingju Bike, Hello Travel and Meituan are expected to increase the market equipment placement by 2 million units. In addition, Xiaoming, No. 7, Street Rabbit and other companies will also increase the number of devices placed in the sinking market, and the number of devices in China's shared electric bicycle industry will still maintain rapid growth in the future. 2020-2025, China's shared electric bicycle placement will still expand rapidly, and in 2025 China's shared electric bicycle placement is expected to reach 7.945 million units, and in the same period China's shared electric bicycle market size will increase with the The market size

of China's shared e-bike market will increase with the massive increase in the number of shared e-bikes launched in the same period, and the market for shared e-bikes in China is expected to reach 43.50 billion yuan in 2025.

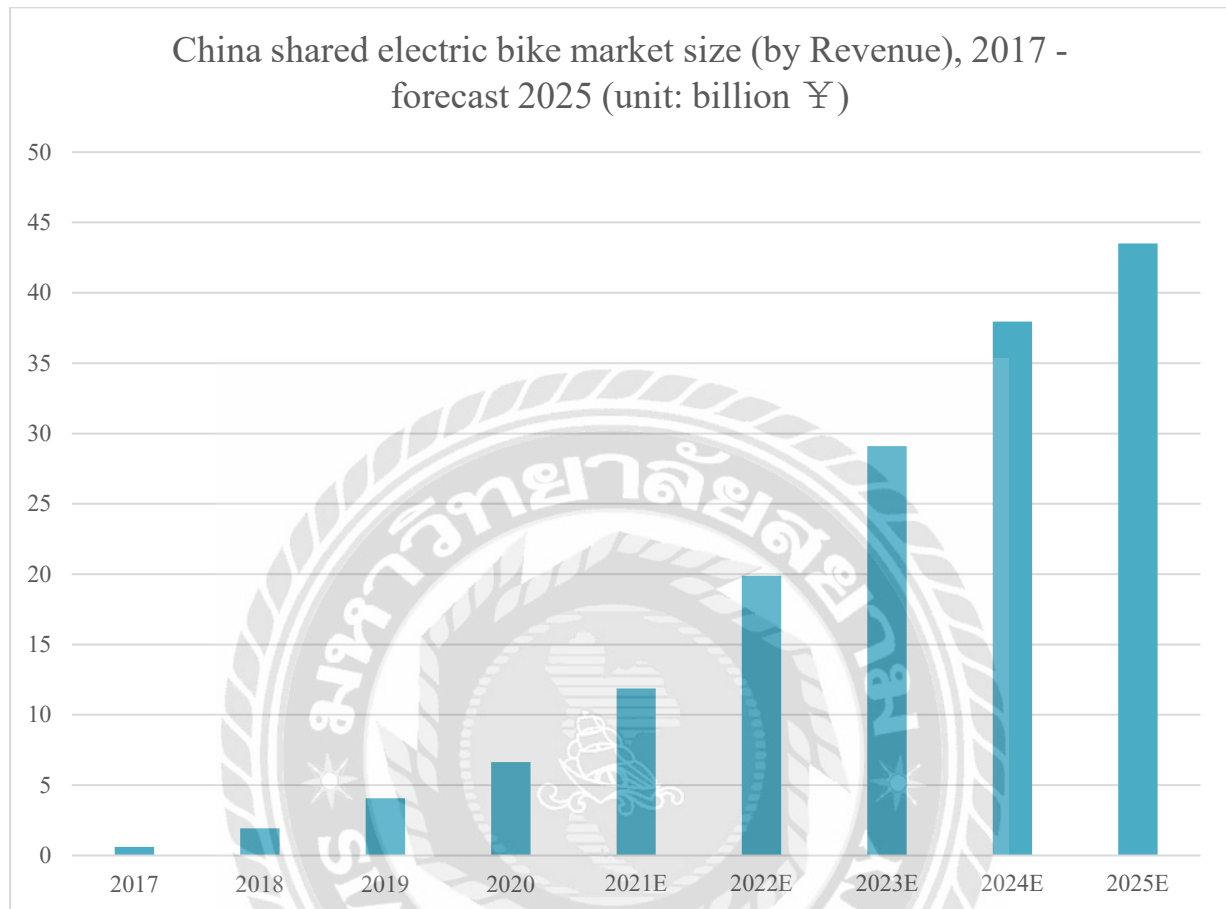


Figure 4.2 China shared e-bike market size (by Revenue), 2017 - forecast 2025 (unit: billion ¥)

Data source: LeadLeo Research Institute (<https://www.leadleo.com/>)

First- and second-tier cities have high population density and high travel demand, and the demand for shared motorcycles is high and dense. However, due to the shortage of traffic space resources in first- and second-tier cities, shared motorcycles need to occupy traffic resources such as sidewalks, which will bring potential traffic congestion and safety problems. Considering traffic safety factors such as population density and street congestion, first-tier cities such as Beijing clearly stipulate that they will not develop electric bicycle rentals and will strengthen relevant business supervision. Therefore, in 2020, China's shared motorcycle deployment areas will be concentrated in third-tier and lower-tier cities, accounting for 73.9% of the total. In the future, the supervision of motorcycles in first- and second-tier cities will become stricter, and the shared motorcycle business area will still focus on the sinking market dominated by third-tier and lower-tier cities.

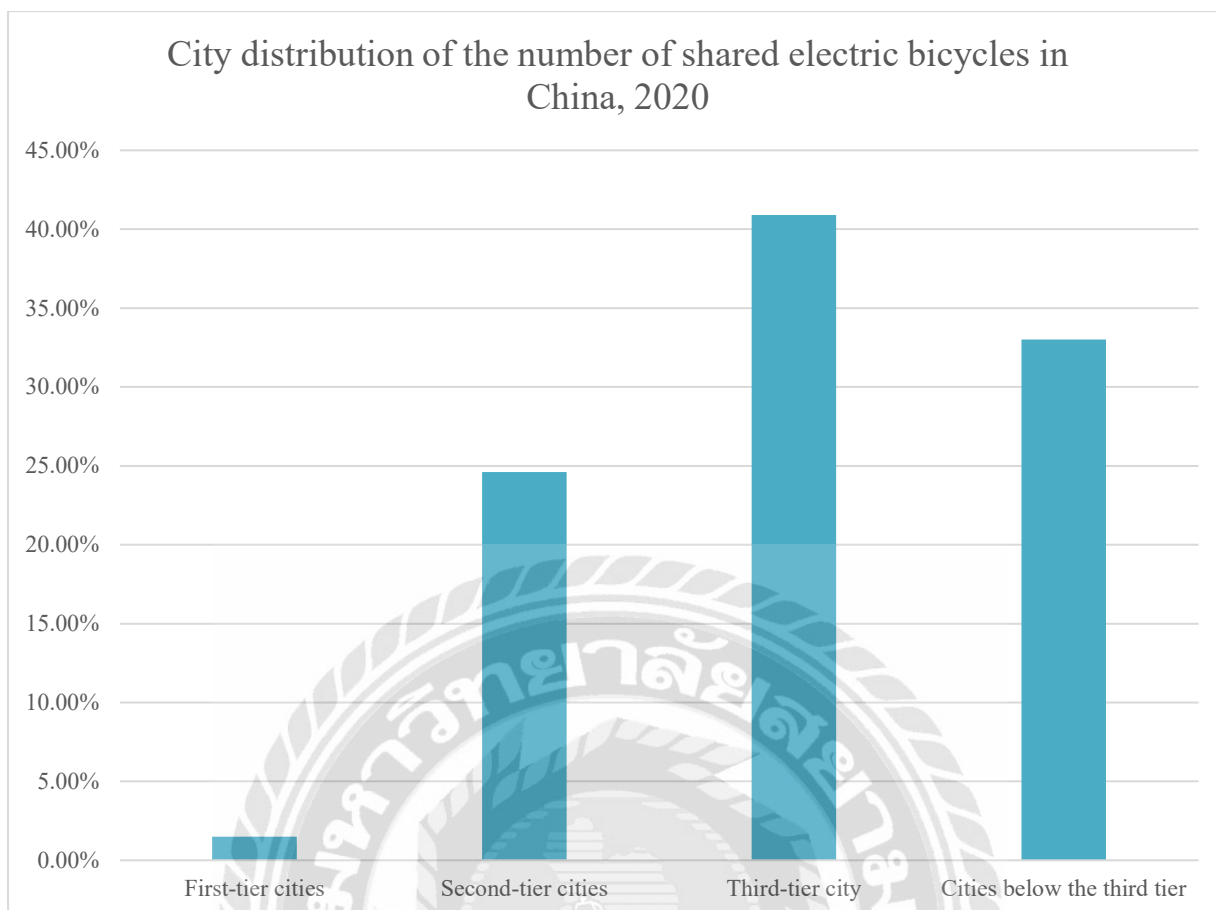


Figure 4.3 City distribution of the number of shared electric bicycles in China, 2020

Data source: LeadLeo Research Institutes (<https://www.leadleo.com/>)

The current customer price per shared e-bike in China is approximately RMB 2. Due to the difference in transportation resources between first- and second-tier cities and sinking markets (third-tier and lower cities and counties, etc.), first- and second-tier cities have more dense transportation resources and users in first- and second-tier cities can more conveniently choose public transportation as a 3-10 km travel tool. Compared to buses, shared e-bikes do not have a price advantage. In the sinking market, users can choose taxis and online vehicles as their 3-10km travel means. In contrast, shared e-bikes have a higher price advantage, and the demand for shared electric e-bikes in third-tier cities and markets below third-tier cities drives the shared e-bike industry downwards.

In 2020, third-tier cities will be the most important revenue markets for shared electric bicycles. Due to the price advantage of shared electric bicycles in third-tier cities and lower-tier cities, from 2020 to 2025, the growth of China's shared electric bicycle market is expected to still come from third-tier cities and lower-tier cities. In addition, due to the shortage of transportation space resources in first- and second-tier cities, the governments of first- and second-tier cities are expected to continue to adopt restrictive policies on shared electric bicycles, which will promote the sinking of the shared motorcycle market. In 2025, cities below the third tier will surpass the third-tier cities to become the main source of revenue for shared electric bicycles in China, and the annual revenue of the cities below the third tier will reach

18.70 billion yuan by then.

4.2 Industry chain analysis

4.2.1 Upstream of the industry chain

Electric bicycle. E-bike accessories include chargers, controllers, batteries, turnbuckles, gates, power sensors, motors, lamps, meters, etc. A small number of specially constructed e-bike parts also include column motors, mid-mounted motors and friction tyre motors. The upstream players in the e-bike industry are manufacturers of e-bike components, including manufacturers of electrical components (batteries, chargers, motors), manufacturers of vehicle bodies and standard parts, and manufacturers of accompanying accessories. Among them, manufacturers of electric components are the main upstream components. As hundreds of materials are required for the production of vehicle bodies, standard parts and accessories, there are many different types of materials and the upstream corporations are extremely fragmented. In addition, vehicle body and standard parts manufacturers, vehicle accessories manufacturers have low technical and financial barriers, and the scale of manufacturers is generally small, the degree of scale is low, and the industry concentration is low. Electric components are the main components of electric bicycles, and batteries are the core link of electric components. The types of batteries required for electric bicycles mainly include valve-regulated lead-acid maintenance-free batteries, colloidal lead-acid batteries, nickel-metal hydride batteries and lithium-ion batteries. In addition, electric bicycle batteries also include a small amount of fuel cells, zinc-nickel batteries, zinc-air batteries, and the like. In 2020, the mainstream battery type in China's electric bicycle market is lead-acid batteries, accounting for about 76%. China's electric bicycle battery suppliers are highly concentrated. The top suppliers include lead-acid battery suppliers Chaowei Power, Tianneng Power, Camel Group, etc., as well as lithium battery suppliers Phylion Power, and the industry market revenue CR4 is about 81.0%. Since the new national standard clearly stipulates the weight of electric bicycles (not more than 55 kg), under the same battery life, the weight of lead-acid batteries is about 3.5 times that of lithium batteries (the weight of common lead-acid batteries on the market is 17.5 kg, and the weight of lithium batteries is 5 kilograms), pushing electric bicycle manufacturers to replace lead-acid batteries with lithium batteries. In the future, the market share of Chinese electric bicycle suppliers is expected to change: lithium battery leaders such as Ningde Times, Guoxuan Hi-Tech, etc. will deploy lithium battery supply business for electric bicycles. In the future, the market share of these lithium battery leaders in the electric bicycle lithium battery market is expected to increase.

Charging and discharging cabinet and charging and discharging technology. In addition to the upstream main body of the original electric bicycle industry chain, the upstream suppliers of the shared electric bicycle industry chain also include charging and discharging cabinets and charging and discharging technology suppliers. China's charging and discharging cabinets and charging and discharging technology suppliers are mainly concentrated in Beijing, Shanghai and Shenzhen. The main suppliers include Ivy IoT, Tower Energy, Honeybuy Technology, E-Motor Technology, Zhilian IoT, etc. Compared with electric bicycle battery suppliers, the

charging and discharging industry is still in the early stage of development, and the industry concentration is low. The business of shared electric bicycle charging and discharging cabinets and charging and discharging technology suppliers is divided, which can be mainly divided into charging and discharging service technology development and operation, charging, and discharging service technology development and equipment, and charging and discharging technology developers. Among them, charging and discharging service technology development and operators are the mainstream operation modes of the industry, accounting for more than 90% of the total number of enterprises in the industry.

Vehicle production foundry. Shared electric bicycle companies mainly produce shared electric bicycle equipment through vehicle production foundries. The main shared electric bicycle foundries in China are the same as electric bicycle manufacturers. The main enterprises include Yadi, Xiaoniu, Emma, Tailing, Xiaodao, Xinri, Luyuan, Xiaoniao, Oupai, Jihao, etc. In 2020, the output of electric bicycles in China is about 44.39 million units, and the market demand has maintained steady growth for a long time. The scale and concentration of the industry are high. In 2020, the CR10 shipments of Chinese electric bicycle manufacturers will be about 80%. In 2020, the revenue of electric bicycles in China is 71.03 billion yuan. According to the travel demand of Chinese residents, the number of electric bicycles in China has not reached saturation. With the gradual implementation of industry regulatory policies, the long-term and stable electric bicycle travel demand of Chinese residents will promote the increase in the production and sales of electric bicycles, and the scale of electric bicycle revenue will maintain a steady growth in the future. It is estimated that China's electric bicycle market will reach 96.58 billion yuan in 2025.

4.2.2 Midstream of the industry chain

The midstream main body of the shared electric bicycle industry chain is the shared electric bicycle operator. At present, the main enterprises of shared electric bicycles in China include Haro, Qingju, Meituan, Jietu, Yonganxing, Songguo, Qidian, Xiaoming, No.7, Mibu Technology, etc. In 2020, China's leading shared electric bicycle companies include Hello, Qingju and Meituan. The common point of the three is that the company provides services of sharing bicycles and sharing electric bicycles at the same time. Hello, Qingju and Meituan were the first to launch shared bicycle services, and developed the shared electric bicycle business at a lower cost through the software and platforms built by the shared bicycle services. In addition, the shared bicycle business provides a large amount of effective shared travel user data for enterprises to deploy shared electric bicycle services. Therefore, Hello, Qingju and Meituan have all been successful in developing shared electric bicycle business. The business model of shared e-bike operators is simpler. The rental car deposit provides business cash flow for the company and is the main source of revenue for the company. The rental of shared electric bicycles is usually charged according to the length of use. At present, the cost of using shared electric bicycles is about 4 yuan/hour. A few shared motorcycle operators charge by the mileage used. For example, the rent of a No. 7 motorcycle is 2 yuan if it is less than or equal to 5 kilometers; if it is more than 5 kilometers, an extra 1 yuan will be charged for every 1 kilometer; Shared electric bicycle operators are focusing on developing diversified income. At

present, the diversified income of shared electric bicycles is mainly advertising income from offline terminals and software platforms.

4.2.3 Downstream of the industry chain

The downstream main body of the shared motorcycle industry chain is the shared electric bicycle users. In 2020, the number and users of China's shared electric bicycle downstream are concentrated in second-tier cities, third-tier cities and cities below third-tier cities, with the proportion of the number of shares being 24.6%, 40.9% and 33.0%, and the proportion of users being 23.5% and 40.5%, respectively. and 34.3%. The ratio of the number of shared electric bicycle users to the number of shares is close. As China's leading shared electric bicycle operators, Hello, Qingju, and Meituan all have shared bicycle business, the number of their shared bicycle and shared electric bicycle users are unified as shared two-wheeler users, so it is difficult to count the shared electric bicycle users. The number of users of shared electric bicycles can be estimated according to the number of users of shared two-wheelers. In 2020, the number of users of shared two-wheelers in China is about 310 million. From 2016 to 2020, China's shared two-wheeled vehicles are in the early stage of industry expansion, and the annual compound growth rate of industry users has reached 79.3%. From 2020 to 2025, limited by the total number of users of shared two-wheeled vehicles, the growth rate of users in the industry will decline sharply. It is expected that the compound annual growth rate of users of shared two-wheeled vehicles will drop to 4.2%, reaching 380 million in 2025. The development trajectory of the user scale of shared electric bicycles is similar to that of shared two-wheeled vehicle users. However, since the shared electric bicycle industry started later than the shared bicycle industry, the accumulated trajectory of shared electric bicycle users is expected to lag behind the overall change of shared two-wheeled vehicle users. In the future, the increase in users of shared two-wheelers will mainly come from the increase in the number of users of shared electric bicycles. As of December 2020, shared motorcycle operators such as Qingju, Hello, and Meituan had a relatively high number of monthly active users (the shared two-wheeler business, considering the high repetition of users on the APP and the applet, this Only active users on the applet are counted here), and the monthly active users were 40.81 million, 36.78 million and 24.52 million respectively. The users of electric bicycles and shared electric bicycles in China are mainly 30-39 years old. Since the new national standard for electric bicycles clearly stipulates that the age of electric bicycle users must not be less than 16 years old, the proportion of electric bicycle users under the age of 19 is low. Comparing the age distribution of shared electric bicycles and electric bicycle users, users aged 20-29 accounted for a high proportion of shared electric bicycles, while users aged 40-49 and over 50 accounted for a high proportion of shared electric bicycles. The reason is that users aged 20-29 are highly receptive to the sharing economy. In addition, the frequency of 20-29-year-old users' demand for electric bicycle travel is less stable than that of users over 40 years old. Users over 40 years old mostly use electric bicycles to buy rather than rent. Therefore, the age distribution of shared electric bicycle users tends to be younger.

4.3 Shared e-bicycle PEST analysis

Although a large number of new shared e-bicycle companies have closed down, there are also companies that have survived, and the mode of operation is becoming more stable. The following PEST model is used to analyze the future development of the shared electric bicycle industry and the possibility of industry improvement.

4.3.1 Policy analysis

Since the sharing economy began to develop in China, the government side of our country has attached great importance to the development of the shared electric bicycle industry. Although the relevant policies were not detailed and clear enough in the early stage, since 2018, increasingly clear regulatory policies have started to be introduced, all of which mean that future opportunities for the standardization of the industry and the development of enterprises will emerge.

Firstly, in August 2017, the Ministry of Transport, the Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Public Security and other ten departments jointly issued the "Guidance on Encouraging and Regulating the Development of Internet Rental Bicycles", which was the first time that China's shared electric bicycle industry had been issued at the national level after its chaotic and barbaric development. The document clearly states that "shared bicycles are an integral part of the urban transportation system" and requires the establishment of a governance system that involves the whole society; the implementation of policies to encourage development, the regulation of operational services, the protection of user funds and network information security, and the creation of a development environment are some of the specific measures that will be taken to manage shared electric bicycles.

Next, many cities also began to introduce local regulations. For example, the city of Xi'an has for the first time clarified the scope of the city's no-parking zone and no-throwing zone, and made corresponding penalties for failure to fulfill the requirements of the regulations; Beijing has clarified the issue of accountability for non-standard implementation of enterprises, while introducing technical guidelines for the setting of parking areas and system technical specifications; next Shanghai, Guangzhou and other cities have also introduced relevant policies for the service standards, technical conditions, parking areas of shared electric bicycles. The next cities such as Shanghai and Guangzhou have also issued policies to regulate the service standards, technical conditions and parking areas of shared electric bicycles, focusing on six aspects: regulating user behaviors, placing new bicycles in an orderly manner, strengthening deposit management, setting reasonable parking areas, punishing vandalism and strengthening safety management.

In the process of making decisions on the governance of shared electric bicycles, local governments have repeatedly introduced the participation of enterprises and social organizations, strengthening cooperation with enterprises in terms of service models and credit systems; interoperating data provided by enterprises with traffic control departments and

building a network system for urban non-motorized transport systems; at the same time, the relevant management regulations also provide for the proportion of vehicle maintenance, repair and dispatching staff to be provided by each enterprise; introducing shared electric bicycles into the insurance mechanism; and clearly defining the roles of the government, the government and the public. The government, enterprises and users have clearly defined their responsibilities and obligations.

At the present stage, the parking of shared bicycles is becoming more and more standardized, and the damaged cityscape has been restored, with the government's participation in management having achieved certain results. It is believed that as the development of bicycle sharing continues, the government will introduce more comprehensive policies to promote the healthy development of the industry from the perspective of regulation, encouragement, and support.

4.3.2 Economic analysis

China's overall economic development is in a new normal stage. In 2016, China's GDP growth rate was 6.7% and the total economic volume was 74.4 trillion; in 2017, China's GDP growth rate was 6.9% and the total economic volume exceeded 82 trillion; and in 2018, China's GDP exceeded 90 trillion for the first time, with a year-on-year growth of 6.6%. On the whole, China's total economic volume has been on an upward trend and the overall economic environment has driven the development of the sharing economy. As a typical representative of the sharing economy, the shared electric bicycle is developing in parallel with the new normal economic situation, so it is a better economic environment at this stage.

By the end of 2015, the number of Internet users in China had reached 6.8 billion, and the number of mobile Internet users was over 90%. According to the China Internet Development Statistics Report, the mobile internet has shaped a new way of life, and with the development of the internet industry, mobile payments and usage will become more and more popular, which has laid the foundation for the development and penetration of shared bicycles.

4.3.3 Social analysis

Among the biggest social problems in China in recent years have been air pollution and traffic congestion. As socio-economic development and air pollution from the development of the automobile and industrial sectors has become increasingly serious, measures to improve these two issues will receive sufficient attention from the government, and shared bicycles fit the bill. To a certain extent, shared bikes complement the integrity of the urban transport system. By replacing car travel with cycling, shared bikes meet the travel needs of city dwellers, while saving energy and reducing emissions, being environmentally friendly and healthy, and responding to the government's call for "green travel, low-carbon and environmentally friendly" travel. The shared electric bicycle is based on the health and environmental protection and convenience of these two points to enter the market, so from the general trend, the social environment of the shared electric bicycle is better.

From a social perspective, China has experienced serious air pollution and urban traffic congestion in recent years. In Beijing, for example, the average daily concentration in Beijing reached 168 days in 2016, accounting for 45.9% of the year, with urban air quality deteriorating; at the same time, China's first and second-tier cities have seen a dramatic increase in vehicles due to economic development, with congestion indices all as high as level 2 and urban travel efficiency decreasing year by year.

In March 2018, the first economic and social impact report on shared bikes was released, which showed that the shared bike industry contributed 221.3 billion yuan to the economy and society in 2017, pulling in 390,000 social jobs, saving 7.6 billion hours of travel time for the public and saving 1.3 billion yuan in haze management costs. In terms of employment, the operation and management of shared e-bikes require management and service personnel. In March 2017, the country's first "shared bicycle service specification", which relies on regional collaboration, clearly states that 50 people per 1,000 bikes are required for service and management. This gives a clear standard and direction for the employment rate of the population in the shared e-bike industry, which does not include manufacturing companies' production staff and R&D staff in the technology industry, as well as other business and service staff. The development of the shared motorcycle industry can bring a high employment rate of people to the society, which is an advantageous factor for the development of the industry.

4.3.4 Technical analysis

Science and technology have brought new opportunities to many enterprises, and the development of shared e-bicycles cannot be separated from the development of Internet technology. In addition to the bonus technology of mobile payment, shared e-bicycles use the Internet of Things in the city's transportation system, including two-dimensional code identification and GPS positioning and other intelligent technologies, including solid tyres, shaft drive, aluminum alloy welding and other industrial technologies have also created better conditions for the development of shared e-bicycles. The development of shared e-bicycles has also created better conditions. To sum up, the technical environment of shared e-bicycles relies on the development of computer science and communication technology, and information technology development is the support for the development of shared e-bicycle technology. For example, ofo's generation of bicycles are easy to unlock and also have loopholes that allow users to use the bicycle without having to scan the code again once they remember the password, which has led to many people riding the bicycle home and taking it for themselves, and then netizens have set up "password sharing groups" This led to many people taking their bikes home and keeping them for themselves, and then netizens set up "password sharing groups" to exchange unlocking tricks, until ofo launched its second generation of bikes, using a "mechanical + smart lock" solution and GPS positioning system to deal with the above, but this solution could not immediately replace all the bikes on the market, so this technical loophole also led to a big loss for the bikes This technical loophole has led to a major loss for the company.

Through the history of development, the iteration of e-bicycle sharing is a very universal

issue. Technology is always evolving and it is common for new technology to update old products and services. Of course, technology will become more and more comprehensive and there will be fewer and fewer mistakes due to technical flaws, but the process of constantly updating technology is also a regular expense for shared e-bicycle companies.

China's Internet technology has been at the forefront of the world's development, artificial intelligence technology is also in rapid development, the development of shared electric bicycle enterprises has also driven the development of the information technology industry containing the two sectors. The development of shared e-bicycle companies has also driven the development of the information technology industry and related industries in China.

The Chinese government currently attaches extreme importance to both the internet and new energy sectors, with China's internet development already at the forefront of the world, and the 2016 Chinese Government Work Report formally proposed for the first time, "emphasizing improving the travel environment, regulating travel rules, encouraging capital cooperation and promoting intelligent creation National and local governments have a positive attitude towards shared e-bicycles and strengthen relevant policies to drive the rapid development of shared electric bicycles."

And with the development of the Internet, the gradual maturity of Internet technology, the popularity of smartphones and 4G networks, the development of new information technology factors such as mobile payment, GPS cloud computing technology and the Internet of Things, all these technical factors have created a good development environment for the building of a popular platform for sharing electric bicycles.

From a comprehensive point of view, with the growing problem of congested urban traffic and the impact of urban industry on the environment, the market demand for travel environment improvement is getting stronger and stronger, and with the support of modern internet and intelligent technology, government governance will become more and more rationalized and the industry will become more and more standardized. The exploration period in the early stages of industry development will lay a solid foundation for the development of the industry, with continuous innovation on the basis of the current growth The future of the industry will be bright as it continues to improve its operational methods, strengthen cooperation and communication with the government and find more profitable models.

4.4 Hello travel SWOT analysis

4.4.1 Strength analysis

Account security. In terms of account funds, Company Hello Travel has implemented a "0 threshold no deposit" policy. After registering and authenticating with your real name, you can use it without paying a deposit, so there is no risk to the security of your deposit. Safety education for new riders: Once the appropriate software is downloaded from your mobile phone, safety education is provided to ensure that every new user is given detailed instructions on how

to use the product and safety instructions when using it for the first time. The physical bodywork will also be prompted to inform the user in a prominent position on the bodywork of the relevant actions to be followed during the ride to ensure safe riding. User stratification and education: Users are stratified through their cycling data in the background, with intelligent speed limits to reduce the risk of cycling for some users with poor cycling behavior, while they are guided through customer service channels to receive stricter education on cycling norms. For users with particularly bad riding behavior, their accounts will be frozen and their right to use the shared e-bikes will be suspended or stopped. User access level: real name registration is used to ensure one-to-one correspondence between users and vehicles to avoid Illegal use of the vehicle. Restrictions on the age of users to ensure that only healthy users who meet the age (16 years or older) and physical conditions for riding a motorcycle on the road can use it. and physically fit to use them.

A ride guarantee mechanism is in place. Pre-ride: Restrictions on user access, real names must be The vehicle can only be borrowed after verification; differentiated treatment for new and experienced users, strengthening the night, rain and snow The system is also designed to provide targeted reminders for new users at night, in the rain and snow, and on road sections; preventative speed limits for nighttime, novice and downhill scenarios; through special education, targeted education and voice broadcasting to remind users to pay attention to safety before riding. During riding. Continuously monitor riding trajectory and control users' riding behavior through the product's capabilities, such as sub scene speed limit, turn on riding protection in different situations; guide users to regulate riding through speed and voice; meanwhile highlight the help display, you can request assistance from our company in time after an accident; after riding: the riding behavior is carried out After the ride: behavior sub-management of riding behavior, layered control of users, and through the form of case review to enhance the safety management capabilities.

Hello shared e-bike uses intelligent central control. The self-developed intelligent central control not only always diagnoses the physical condition of the e-bike, but also records information on the e-bike's journey and maintenance. The intelligent central control terminal is interfaced with the software platform, so that both users and managers can clearly understand the vehicle's situation. Voice interaction: Intelligent voice prompts remind users whether they have successfully borrowed and returned the bicycle, and can also send out voice reminders in time to facilitate users' car search. The voice recorded by a real person makes the originally cold bicycle sharing become "humane", which closes the psychological distance between the user and the product and makes the product have a temperature. Regular vehicle health inspection: Through the collection and analysis of bicycle equipment data, you can always know the health condition of the vehicle, so that the operation and maintenance personnel can maintain the vehicle in time. Battery safety control: The cloud can monitor the battery condition in real time to avoid safety accidents caused by battery problems.

4.4.2 Weakness analysis

Hello Travel still has shortcomings in the selection and evaluation of operation and

management providers. At the initial stage of taking over the business, the supplier evaluation process in the procurement process was very disorganized, and there were mainly three outstanding problems. First, the supplier background information collected in the evaluation process was redundant and not highly credible. Secondly, the authority, responsibility and responsibility of the evaluation process were unclear. The management is confusing. Thirdly, there was no dedicated person to keep the materials provided by the operation management suppliers. There were serious problems of information loss and leakage after the evaluation process.

Doubtful qualification of operation management supplier and low credibility of commitment. The biggest difficulty in accepting the procurement team's O&M evaluation task was that the regional operators always reported low cooperation from the O&M, or they did not complete the cooperation required by the company, or the promised supply materials did not arrive at the agreed time, but the O&M's capabilities were excellent according to the company's internal scoring form and evaluation recommendations and remarks. Further understanding of the evaluation session by the participating suppliers to fill out the evaluation information, submit the evaluation materials required by the company, the evaluation materials to score three steps. The materials submitted for evaluation are limited to the business certificate, and the qualification review of the transport management is limited to the business license and the basic information of the participating suppliers, and the relevant management personnel only review the information provided, and check the credit list of the relevant Ministry of Industry and Information Technology and the website of the Bureau of Industry and Commerce, etc. In the environment of urgent business expansion time, firstly, no effective evaluation mechanism is established, and then unconsciously simplified and relaxed the evaluation of the participating suppliers. the supplier qualification review.

Single source of operation management suppliers. Since the shared bicycle and shared electric bicycle business model is a product of the new development in recent years, there are not many experienced and resourceful O&M service providers for the company to choose from at the operation and management level. As the shared bicycle and shared electric bicycle business model is a new development in recent years, there are not many experienced and resourceful O&M service providers for the company to choose from. Most of them are introduced from the bicycle business department, and these operation and management providers introduced from the bicycle business department have These O&M providers introduced from the bicycle division have richer O&M management experience, but at the same time, due to more involvement with the bicycle division, there will be If both bicycle and motorcycle are handed over to the same O&M supplier at the same time, if there is a difference in the distribution of benefits, the company will not be able to provide the service. If both bicycle and motorcycle are handed over to the same operation and management provider, if there is a difference in the distribution of benefits, it is likely that one side will be favored over the other. This is not an optimistic development for the e-bike division or even for the company.

The high cost of operation and maintenance, the need for a huge capital chain and cash

flow to keep running, the need for sponsorship of investors is large. Hello travel pre-promotion, due to the uneven quality of residents, the motorcycle parked at will, private lock to make it private, scribble on the vehicle, arbitrary damage, private change the two-dimensional code and other events often occur. The occurrence of these events caused the maintenance is not conducive to targeted will electric bicycle gathered, the public for electric bicycle payment security performance of the trust reduced, increased the operation and maintenance costs; at the same time, along with the private locking and other events, electric bicycle by the company for the social part of the public resources into personal private property, improve the electric bicycle put direct costs, resulting in a large amount of capital loss. These need huge financial support. The sponsorship of investors will become one of the main sources of funding.

The research and development of related Internet and other technologies is difficult and requires a lot of human resources and technical teams to adjust the technology supply accordingly. the research and development of technologies such as GPS + base station + WIFI multiple positioning requires a lot of human resources costs, research and development costs, and network maintenance costs. When customer needs change at a later stage, R&D also needs to make corresponding adjustments to ensure that the relevant needs of customers are met, to stabilize and expand the customer base, and to maintain the competitiveness and vitality of the enterprise.

As Sesame Credit can be ridden without deposit by reaching the corresponding score. The requirements for credit system are high and dependent.

4.4.3 Opportunity analysis

As the pace of life accelerates, people are increasingly looking forward to fast and convenient travel methods, especially college students, who prefer healthy, free, preferential, and cost-effective travel methods, which brings a part of stable customer source to the use of Hello Bike. During the New Crown Pneumonia epidemic, the city was closed, and for those who had to work, shared bikes were an immediate need. In addition, the general environment is more demanding, the proportion of "occupational diseases" has increased, and the proportion of people in a subhealth state has increased, preferring to choose this healthy way of travel.

4.4.4 Threat analysis

Since the establishment of the Hello Travel platform, it has gone through a series of processes such as vehicles being privatized, stolen and damaged, abandoned at the roadside, difficulties in centralizing vehicles during vehicle maintenance, late price increases, and the use of GPS technology to locate vehicles. The news has reported a lot of negative news. This is not a small blow or challenge for Hello travel operations. "Price increase is an inevitable choice, shared bicycle from the business model is a financing-driven, currently failed to achieve cash flow balance through refined operations. Hello travel is only one of the few existing shared electric bicycle platforms, in the Alipay platform, shared electric bicycle service only provides Hello travel and Yongan line in this business. This will lay down the risk of too few competitive

platforms and insufficient innovation power of enterprises. Of course, the competition from other big platforms is also a big threat and a big motivation.

4.5 Hello travel challenges

At present, the sustainable operation of Hello Travel at the economic, social, and environmental levels is facing many challenges. It is understood that Hello Travel adopts a diversified business strategy, with shared bicycles and shared electric bicycles as the core, while exploring a number of innovative businesses. However, the internal main business income of Hello Travel is relatively limited, various costs and expenses are large, and the multi-line parallel new business investment is too heavy. There is a large profit anxiety, and it is subject to many external social and environmental factors. Next, this article will start from the three cases of "limited platform monetization ability", "high cost of main business", and "disordered urban environmental governance" to analyze the current problems encountered by Hello Travel.

4.5.1 Company background and introduction

Hello travel was established in Shanghai in September 2016. Hello travel started from the most familiar bicycle-sharing business, and gradually evolved into a diversified travel and travel business including two-wheel travel, four-wheel travel, wine travel, and in-store services. Local life service platform. Hello Travel is committed to providing users with convenient travel and better local life services through the application of digital technology. According to the official website of Hello Travel, Hello Travel has deployed in more than 400 cities and has accumulated nearly 500 million registered users. Among them, Hello Travel's campus bicycles have benefited millions of college students. The cumulative riding distance of users exceeded 18 billion kilometers, and the cumulative carbon emission savings reached 500,000 tons. As of December 2020, Hello Travel's app was the third largest local service platform in China by transaction volume; it was one of the most active local service platforms in China in terms of the average transaction volume of annual transaction users.

4.5.2 Limited platform monetization ability

Since the birth of shared electric bicycles, whether enterprises can achieve economic sustainability, that is, whether they can achieve self-profitability, has been the most concerned issue of the invested companies and investment institutions; by 2021, the leading enterprises in the shared electric bicycle industry will be Mainly based on Meituan, Qingju, and Hello Travel, the overall business gross profit in the industry is low, and the problem of profit anxiety has become particularly prominent; the only remaining top players in the market have tried various marketing strategies, such as various market activities, Cycling monthly cards, membership recharge and other forms are constantly testing the bottom line of payment that users are willing to travel for the "last mile". Affected by the rigid needs of users and the number of bicycles in the city, the unit price of cycling in many cities has been pushed up to A historical high; at present, under the premise that the products and services of various

companies are relatively homogeneous, on the one hand, it is difficult for Hello Travel to continue to raise prices. As early as 2019, the industry has begun to increase the unit price of riding. Although the price of a single ride does not seem to be high, the increase is not small. By 2021, Hello Travel will implement a differentiated charging policy by region, but the average price has been raised to a higher level in the industry. In this regard, many media and the public have expressed strong dissatisfaction on the Internet. Behind the price increase of shared electric bicycles, it is obviously a helpless act of shared electric bicycle companies to achieve self-profit.

4.5.3 High cost of main business

In the shared electric bicycle industry, the high cost of the main business is the biggest challenge of life and death in the shared electric bicycle industry. As a lesson from the past, Meituan disclosed in its 2018 financial report that after Meituan acquired Mobike, it contributed 1.5 billion yuan in operating income in the first year, but the loss was as high as 4.55 billion yuan, and the shared electric bicycle business accounted for the overall loss of Meituan Group. more than 50%. In 2019, Xiaolan Bicycle was forced to go bankrupt and reorganized due to the broken capital chain and the inability to pay the supplier's payment for goods. After hosting Didi, Qingju Bicycle was hatched. In 2021, OFO's small yellow car is still struggling with the "deposit gate", consumers' rights protection is difficult, and the company is on the verge of bankruptcy. As the leader of the shared electric bicycle industry, Hello Travel, its operation is not optimistic. In its 2021 prospectus to the United States, it is revealed that Hello Travel's annual revenue in 2020 is about 6.04 billion yuan, of which the two-wheeler business (Shared bicycles and shared electric bicycles) revenue of 5.5-billion-yuan, accounting for up to 90%. Its cost structure shows that the annual operating cost is about 5.32 billion yuan, of which the two-wheeler business cost is 5.13-billion-yuan, accounting for as high as 96%; the company's gross profit margin for 2020 is 6.67%, and its net profit margin is - 19%.

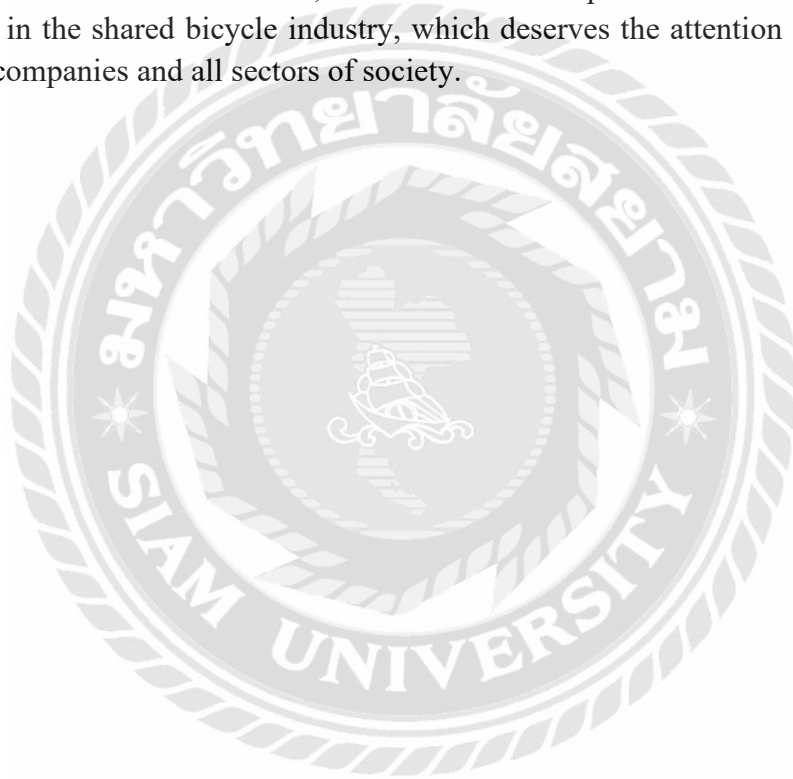
Compared with the asset-light platform companies in the traditional Internet industry, the bicycle-sharing industry adopts a business model of heavy-asset operation. Over the years, high costs have been used to support the daily operation of offline vehicles. According to its prospectus, Hello Travel's cumulative loss from 2018 to 2020 was nearly 5 billion yuan. Among them, a series of expenses such as vehicle depreciation, vehicle maintenance costs, salary costs of offline operation and maintenance personnel, and service fees paid for local partners are an important part of the main business cost of Hello Travel.

4.5.4 Disordered urban environmental governance

In the process of rapid development of China's shared electric bicycles, it also brings a large negative externality to the urban environment, especially in the early stage of brutal expansion. With the help of capital, many enterprises have produced millions of shared electric bicycles. Electric bicycles are put on the streets and alleys of the city; and with the poor management of many companies and the departure of capital, the offline core assets that many companies rely on to survive - the shared electric bicycles are scattered in all corners of the

city, and even formed a "shared electric bicycle cemetery" composed of various colorful electric bicycles. This move not only illegally occupies the city's precious land resources, but also is a huge waste of bicycle resources in the early stage, which has caused a relatively bad social impact.

According to statistics from the Sharing Economy Research Center of the State Information Center, in 2017, the number of shared bicycles in my country exceeded 40 million, and it is estimated that this batch of vehicles will generate up to 300,000 tons of waste after the damage is reported. To this day, various types of shared bicycles, which were launched in disorder in the early days and are now unmanned, are still scattered in every corner of urban roads. Many of the bikes have been seriously rusted and parts have been seriously damaged. But no one cares. Such abandoned bicycles not only cause great damage to the image of the city, but also pose a greater safety hazard to the urban road environment. This is not only an individual phenomenon of Hello Travel, but also a common problem that has not been cured for a long time in the shared bicycle industry, which deserves the attention and vigilance of shared bicycle companies and all sectors of society.



5. CONCLUSION

5.1 Conclusion

As an emerging business product in the new era, the sharing economy has undergone various commercial competitions and eventually polished out products and business models that have penetrated into every aspect of people's daily lives. In particular, the new business model represented by shared electric bicycles has become an indispensable part of people's travel. Despite the fact that motorcycles have been developed for many years, capital has quietly receded and market competition has become increasingly fierce, how can they stand out in the new market landscape and how can they achieve sustainable operation and management at the economic, social and environmental levels? The focus of this article is to analyze the case of Hello Travel and to come up with solutions.

This paper first analyzes the Chinese shared electric bicycle market, then analyzes the Chinese shared electric bicycle industry chain, and finally, through the description of the target case, expounds the prominent problems encountered in the development process of the Hello Travel business. Business strategy management theory, economic innovation and other theories, in-depth analysis of the three cases of "limited platform monetization ability", "cost control imbalance" and "disordered urban environmental governance" in the article, and put forward corresponding solutions to related problems. This chapter summarizes the research conclusions: As an emerging commercial product in the new era, the sharing economy has experienced various commercial competitions in the industry, and the final products and business models have penetrated all aspects of people's daily lives. In particular, the new business format represented by shared electric bicycles has become an indispensable part of people's travel. Although bicycles have been developed for many years, capital has quietly receded, and market competition has become increasingly fierce. How can we stand out in the new market structure, and how can we achieve sustainable operation and management of the enterprise at the three levels of economy, society, and environment? The focus of this paper is to draw countermeasures through concrete cases of shared travel. Next, relevant suggestions are put forward in response to the above problems. The relevant suggestions and countermeasures proposed in this paper may have a strong warning and reference effect for similar enterprises.

This study has successfully fulfilled the research objectives by systematically summarizing the sustainable development and operation of an electric bicycle sharing company from economic, social, and environmental perspectives. The economic analysis encompassed evaluating financial viability, profitability, and cost-effectiveness, while also examining the company's economic impact on the local economy. From a social perspective, the research investigated social acceptance, transportation behaviors, and the promotion of active lifestyles. The environmental evaluation focused on quantifying environmental benefits, mitigating drawbacks, and ensuring sustainable operations. Lastly, the integration perspective considered the interdependencies between these dimensions, proposing strategies and developing a holistic

framework for evaluating overall sustainability. As a result, this study provides a comprehensive understanding of the company's sustainable development and operation across economic, social, and environmental aspects.

The findings of this study hold significant importance for the purpose of the research. Firstly, from an economic perspective, the analysis of financial viability, profitability, and cost-effectiveness of the electric bicycle sharing company provides valuable insights for assessing its sustainability and guiding its future development. Additionally, understanding the economic impact of the company on the local economy helps policymakers and business decision-makers comprehend the economic potential and social benefits of the electric bicycle sharing industry.

Secondly, from a social perspective, the research findings shed light on the social acceptance, transportation behaviors, and promotion of active lifestyles associated with electric bicycle sharing. Analyzing social acceptance provides crucial understanding of public attitudes and usage patterns, offering insights for further promotion and development. Assessing the company's impact on transportation behaviors and travel patterns provides valuable information for urban planning and transportation management, facilitating the adoption and promotion of sustainable transportation modes. Moreover, examining the company's role in promoting active lifestyles contributes to public health and well-being.

Lastly, from an environmental perspective, the findings regarding the environmental benefits, mitigation of drawbacks, and sustainable operations of the company provide essential knowledge for addressing environmental challenges. Quantifying the environmental benefits, such as reduced carbon emissions and improved air quality, highlights the positive contributions of electric bicycle sharing to sustainability. Assessing the company's impact on traffic congestion and noise pollution helps in reducing the negative externalities associated with transportation. Furthermore, examining the sustainability of the company's operations ensures responsible resource management and minimization of environmental impacts.

In summary, the findings of this study hold significance as they provide a comprehensive understanding of the sustainable development and operation of an electric bicycle sharing company across economic, social, and environmental dimensions. The insights gained from this research can inform policymakers, businesses, and stakeholders in making informed decisions to foster sustainable practices, enhance social well-being, and mitigate environmental challenges.

5.2 Suggestions

5.2.1 Improve the level of operating income and meet the core needs of users

5.2.1.1 Improve business profitability

Shared electric bicycles are an offline business with heavy assets. The industry has encountered many years of chaos such as disorderly investment and money-burning marketing.

After the tide fades, it is necessary to return to a sustainable operation model, build self-profitability, and further improve asset returns. Rate. Returning to its bicycle profit model itself, that is, the average daily profit of a bicycle = the average daily income of a bicycle - the average cost of a single bicycle. The formula for the average daily revenue of a bicycle can be disassembled: Average daily revenue of a bicycle = average daily order amount of a bicycle * average daily order quantity of a bicycle. Among them, the average daily revenue is mainly affected by the average daily order amount of bicycles and the average daily order volume of bicycles. Limited by the current market competition environment and user acceptance, the overall product pricing in the industry has converged and has reached an almost delicate balance point. Homogeneous products and services make the space for the increase in the unit price of cycling relatively limited. Therefore, the key point of revenue is to increase the average daily single volume of bicycles, that is, to improve the matching efficiency of vehicles.

Faced with the difficult problem of uncertain cycling demands at different locations and time periods in the city, by making accurate supply and demand predictions on the overall dimensions of the city, based on POI site information, historical cycling data, real-time weather, holidays, and other factors, using artificial Intelligent algorithm to achieve the optimal matching of capacity in time, space and demand, and realize intelligent route optimization. Optimize the supply and demand forecast model of each grid, improve the rollover rate of each vehicle, and help improve the overall travel efficiency of the city. Through the analysis and processing of big data, the limited operation and maintenance personnel and the continuously changing vehicle distribution are distributed. With the help of artificial intelligence and deep machine learning algorithms, the middle platform can instantly output the global optimal vehicle resource allocation plan. Through the intelligent balance planning based on the real-time position of dispatchers, vehicle capacity and vehicle real-time position, the optimal matching of operation and maintenance personnel-vehicle demand-dispatching location is completed to meet the ever-changing riding needs of users. Shared electric bicycle companies take advantage of their own software, hardware, data, and other advantages to integrate into urban smart transportation, and drive refined operations through continuous technological iteration, which not only achieves the growth of their own income, but also further solves the problem of urban traffic governance.

5.2.1.2 Explore innovative business in multiple sectors

The typical high-frequency and low-cost nature of the shared bicycle business has not only driven the rigid demand for shared bicycles from offline users, but also stimulated demand for other local lifestyle and travel services. As a platform company, Meituan Review, for example, has implemented a comprehensive Food + Platform strategy, using its high-frequency takeaway business as an entry point to horizontally open up a full-scene layout of local life from movie tickets, hotels, travel and tourism, thus laying down its industry moat advantage.

Hello travel as the market's head of the shared electric bike travel platform, from the platform's daily active user scale, hello travel hand in hand with the huge offline travel traffic, through high-frequency business to drive low-frequency business, try to meet the user more

potential demand. Hello travel based on the core two-wheeled business, from the vertical expansion, from the mobile travel scene of the wind, carpooling and other areas to cut into, and gradually in the net car market to stand firm. From the horizontal expansion point of view, the user travel often accompanied by a series of consumer demand for food, drink, and entertainment, can be through the shop group purchase, hotel booking and other areas to enter, and gradually develop the local life services market. Whether it is the hitchhiking business, or group purchase business, as the platform side of hello travel core strength point is to collocate the supply and demand sides of the transaction to reach, to light asset mode of operation. These businesses have a natural high flow, high gross profit characteristics, its business model has been proven by the market, the industry development is also more mature.

It is worth noting that the development of China's Internet economy has been more mature, in local life and travel track there is a certain oligopoly phenomenon, the industry leaders have a strong moat. In the process of exploring innovative business in Hello Travel, it is important not to go into multiple directions and attack blindly; it is recommended to start from familiar areas, play to their own strengths to find the right business entry point, explore, and run a new model that fits the company's DNA and sustainable operation.

5.2.1.3 Strengthen ecological synergy between platforms

Hello Travel was once a game-breaker in the shared bicycle industry, and survived in the shared bicycle war with its excellent strategy and execution. Under the current new situation of stock competition, it will be difficult to maintain the sustainable operation and development of the enterprise by simply relying on the shared bicycle business itself to "go it alone". Throughout the head, Meituan and Qingju are attached to the platform companies behind them and become an important part of their super ecology. And Harrow Travel itself should seize the current opportunity to establish and strengthen the ecological cooperative relationship with the leading platform. For example, in-depth cooperation in multiple segments such as traffic entry, map navigation, third-party payment, data sharing, technical interface opening, and offline merchant resources.

As one of the largest application scenarios in the sharing economy, shared electric bicycles need to maintain close collaboration with other companies while continuously developing and expanding their own business; by integrating upstream and downstream resources, they will continue to consolidate their own moat. Enterprises provide traffic distribution portals for super-platforms, and super-platforms provide scene supplements and technical support for enterprises, promote the exchange of information and data between each other, and act as intermediaries for each other, creating an ecological synergy effect of value co-creation and win-win cooperation.

5.2.2 Optimize the operating cost structure and strengthen the refinement of management

In the current stock competition in the shared bicycle industry, the overall business model

of the companies in the industry has converged, and the ultimate refinement of operation and management is the core competitiveness of shared bicycle companies to survive. From the perspective of sustainable internal operation of Hello Travel, on the one hand, through the dismantling of the cost structure to achieve effective cost control; on the other hand, the establishment of a standardized operation system to achieve the benign operation of offline vehicles; further "cost reduction and efficiency" initiatives will continue to promote the sustainable operation and management of Hello Travel.

5.2.2.1 Enhancing cost management control levels

Upgrade the design of the model to improve the wear and tear resistance of the vehicle . By working closely with upstream suppliers of head components, the two sides should not only cooperate on order procurement, but also deepen their cooperation to jointly improve the production efficiency and standardization of the shared electric bicycle industry. By constantly iterating on innovative models and increasing the scale of mass production of wear-resistant components, the cost of component replacement will be significantly reduced. Customized research and development for high-frequency modules used by users, such as intelligent wheel locks, multi-adjustable seats, and solar charging panels, to slow down ageing: sun protection, anti-oxidation, and water resistance for the body to slow down ageing and rust treatment; and highly integrated modular design to reduce the impact of different components on each other and improve the body's resistance to damage. At the same time, the data from the user side will be fed back to the production side, forming a C2B production model oriented to user experience, and the upstream manufacturers will carry out targeted design optimization and process improvement, thus further reducing the replacement cost of wearable parts.

Improve the intelligent management of placement and dispatch. The intelligent management of the launch and dispatch, the strengthening of the processing and analysis of big data in the enterprise's central office, the management of urban roads in a grid dimension, the accurate prediction of the flow of people at different times and different points. In particular, the common commuting scenario, the tidal effect is used to cut the peaks and fill the valleys to supplement the capacity. The offline operation and maintenance staff can learn the latest real-time status of the grid vehicles with their handheld intelligent terminal devices, timely adjust the dynamic increase and decrease of vehicle scheduling, reduce ineffective manual intervention, and greatly improve the efficiency of offline operation and maintenance staff by automatically issuing task work orders, such as operation and maintenance orders, customer service orders, etc., thus improving the operation and maintenance man-vehicle ratio, thus further reducing the cost of motorcycle operation and maintenance.

5.2.2.2 Establishing a standardized service and operational system

Establish an internal data monitoring system for shared e-bicycles. With the help of a big data platform, we can locate problems in advance of customer service and establish a fast internal processing channel to prevent them before they happen. This will enable the company's top to bottom, each functional role to follow up on various matters affecting user experience

through the system's real-time data indicators and work order warnings, and to attribute problems to the designated key person responsible and optimize services accordingly.

Improving standardized operations and maintenance to give users a good ride. The grid is the core unit of urban refinement operation. Once the bikes are launched, they are divided into regional grids and each grid is assigned to a fixed number of staff for efficient operation and maintenance, and different operation methods are implemented according to the characteristics of different grids to effectively guarantee the user experience. Different operation methods are implemented according to different grids to ensure that users can always get a good ride in their city.

Implement a system of responsibility for grid operation and maintenance personnel, and split urban indicators into each grid. Responsibility to the person, layer by layer supervision; the industry's current salary composition of operations and maintenance staff is mainly piece-rate income, that is, mainly to transport and repair the number of vehicles, operations and maintenance staff to assess and pay; it is recommended that on this basis, the performance management module can be added, the specific work is divided into: inspection - processing - scheduling, especially for the placement of vehicles, cleaning and other detailed assessment, to do "car fall will help", "car dirty will wipe", "car chaos will be whole", so that the operation and maintenance staff is not limited to vehicle scheduling, but more concerned about the vehicle put into operation after the cleaning and maintenance, to extend the use of the vehicle cycle.

The key to establishing a standardized vehicle maintenance process is to find problem vehicles in a timely manner. Through the vehicle's intelligent electronic lock, Beidou positioning technology, etc. to determine the specific problems of the vehicle. The system initially diagnoses the type of fault, "small bump and small touch" light fault vehicles, such as the handle set is missing, the bike bracket is missing, the bell is damaged, etc., to guide the operation and maintenance personnel on-site timely repair; for the impact of riding heavy fault vehicles, such as vehicles in the long-term dark and humid areas, do not see the sun, resulting in the loss of connection, as well as large body damage such as can not drop the lock For example, if the vehicle has been left in a dark and humid area for a long time and has not been exposed to sunlight, resulting in loss of connection, as well as extensive body damage such as failure to lock, brake failure, chain slippage, etc., mark it for recovery. Timely arrangements are made for the vehicles to be transported back to the warehouse for repair. At the same time, additional maintenance points are set up to ensure full coverage of all vehicles in the grid.

5.2.3 Improve the overall user experience

The core product provided by shared electric bicycles for users is offline vehicle rental services. The comfort, safety and economy of offline vehicles directly affect the quality of user experience, and the quality of user experience directly affects the operation of enterprises. Income level. Through standardized management, users are provided with a good travel experience and their willingness to share and recommend externally is increased.

5.2.3.1 Form an NPS (Net Promoter Score)-oriented corporate culture

From the management to the grass-roots employees, the company adheres to the top-down corporate culture oriented by NPS, that is, implements the true "user-centered" corporate values, actively promotes the supremacy of users' interests, and effectively solves the core problems that users care about. , Organization departments at all levels, including the core management, should pay attention to and practically apply NPS indicators, and carry out a series of business operations to improve user experience around NPS.

5.2.3.2 Establish an external media evaluation system

Based on public media channels such as government notifications, media reports, black cat complaints, Ju complaints, Weibo, Tieba, Internet posts, etc., regularly capture users' complaints and complaints about product experience, and digitize users' "spit" or "review", Informatization, the user experience public opinion report is formed, which is used to timely provide early warning and guide work improvement.

5.2.3.3 Establish efficient user communication channels

Establish an efficient feedback mechanism between enterprises and users. In the process of using the shared two-wheeler, if users encounter related product and service problems, they can appeal through APP, applet, telephone, official website and other channels. For personalized problems reported by users, based on problem classification, such as unreasonable deductions, accident claims and other appeals; a special person will follow up and solve them as soon as possible.

Through the analysis of customer portraits, combined with different service labels, it is used to assign different professional customer service follow-up solutions. Routine problems are handled according to the general process, and customer service has the right to deal with them directly. If overtime billing and refunds are required due to vehicle failures, customer service does not need to upgrade and handle them. After verification, they will directly operate refunds to reduce user waiting time. If there are special problems that need to be upgraded, connect with the customer service work order system, associate, and clarify the responsible person and processing time, internal supervision, and fast closed-loop related problems.

5.2.4 Actively practice social responsibilities and deepen government-enterprise collaboration

As a new product in the "Internet +" era, shared electric bicycles not only implement the concept of green, low-carbon and environmentally friendly travel, but also are deeply loved and welcomed by all walks of life. An economical, convenient, and irreplaceable travel experience. According to the statistics of the Ministry of Transport, through the analysis of the daily average number of rides and the delay index of congestion in Beijing, Shanghai,

Shenzhen, and Guangzhou, it is found that shared electric bicycles are very effective in alleviating urban traffic congestion and can improve the overall travel efficiency of the city. Increase by 15%-19%. In order to further promote its sustainable operation and development and promote multiple collaborative governance; enterprises should actively participate in the social governance of shared bicycles, practice their due social responsibilities, and establish industry consensus and code of conduct; Integration, coordination, and co-governance, to jointly build a new ecology of urban slow traffic.

5.2.4.1 Promoting the infrastructure construction of shared e-bicycles in cities

The effective establishment of urban infrastructure will help to fundamentally solve the negative externality problem of shared electric bicycles in urban travel. The quality of urban infrastructure construction is a key link that directly affects whether shared electric bicycles can enter a sustainable operation mode.

The first is to have the urban planning department take the lead, scientifically and rationally plan the urban traffic road network, and incorporate shared electric bicycles into the consideration of the overall urban transportation system. The second is to plan special roads for electric bicycles, through the scientific and rational design of motor vehicle lanes and non-motor vehicle lanes. For example, according to the requirements of urban traffic regulations, in areas with high demand for shared electric bicycles, special bicycle lanes should be opened in the slow traffic system, which can be distinguished by special signs or colors, so as to provide convenience and convenience for users of shared electric bicycles. Safe travel environment. Finally, it is necessary to standardize and open standardized parking spaces. The most criticized problems of shared bicycles are illegal road occupation and vehicle congestion, which have brought great safety hazards to pedestrians and motor vehicles. The city management department can refer to factors such as the demand for vehicles, the flow of people, and convenience in different areas of the city, divide the area at different points, open standard parking areas, and mark conspicuous icons on the ground to guide users to standardize parking.

5.2.4.2 Establish social emergency public incident support and emergency plans

Shared electric bicycles, as one of the most convenient and convenient public transportation vehicles closest to users, should actively play and fulfill their social responsibilities in the event of public emergencies. As the main operator of Hello Travel, it should discuss with the local government in advance and formulate relevant support and emergency plans. For example, in a state of emergency, as a temporarily requisitioned crowd dredging tool, shared electric bicycles should create a convenient, orderly, and safe travel environment for people. In high-risk areas of the new crown epidemic, all types of shared bicycles should implement indiscriminate disinfection and cleaning measures, increase the frequency and scope of disinfection, especially for users who use high-frequency seat cushions, handles, and quick release parts. Comprehensive epidemic prevention work should be carried out for high-frequency riding areas such as bus hubs and office spaces; at the same time, based on the requirements of epidemic prevention and control, enterprises use cycling big data for

scientific management, and timely trace and report riding orders in medium and high-risk areas. In order to scientifically and accurately prevent and control; at the same time, it cooperates with on-board Bluetooth voice, APP, and small program channels to broadcast and publicize epidemic prevention information, and multiple measures are taken to ensure the travel safety of the majority of users.

5.2.4.3 Building a mutual aid and governance system for the shared motorcycle industry

At present, there are few mainstream players left in the shared electric bicycle industry, with the market share mainly occupied by Qingju, Meituan and Harrow, and it may be difficult for new players to enter the market in the short term. The head enterprises can respond to the government to set up a shared electric bicycle industry association, members of the association enterprises seek common ground and seek common development. As the total amount of bikes placed in most cities has reached the upper limit, cooperation between companies has shifted to competition for stock, which is a competition for efficiency in resource use and effective cost control. Existing sharing companies can sign cooperation agreements with each other and try out a cooperation model of sharing resources and responsibilities in areas where they overlap. For example, the offline operation and maintenance management teams of industry members can collaborate with each other, so that vehicles of any color on the road can "come to the rescue" if they encounter minor problems within their reach, and "help when a car falls over", "help when a car is dirty" or "help when a car is dirty". The car dirty to help wipe", "car chaos to help the whole". If all parties abandon their barriers and cooperate sincerely, it will greatly improve the efficiency of offline operation and maintenance in the industry.

On the other hand, the industry association can jointly advocate civilized use of bicycles and open up a credit point system for bicycle sharing users; for unlawful and non-compliant "untrustworthy" users, members of the industry association can jointly resist and suspend or ban their access to bicycles. For those who are trustworthy and civilized in their use of bicycles, the members of the industry association will jointly recognize them and give them a certain amount of honor or points.

5.2.4.4 Integration into the city's intelligent transport system

The continued spread of the 2020 epidemic makes the value of shared motorcycles in the city's intelligent transport system particularly important, and shared motorcycles will be one of the important ecological partners of the city's intelligent transport system. The company should focus on promoting the organic combination of "enterprise hard technology" and "urban ecosphere", with technology as the core, relying on its own technology and platform strength to continuously polish the level of refined operation, using cutting-edge Internet technology, collaborating with other The company also uses cutting-edge Internet technology to collaborate with other public transport services, to open up the ecology of travel service scenarios and to empower the city's intelligent transport system.

Hello travel through several product iterations and service optimization, should continue

to strengthen the development of intelligent planning and scheduling, intelligent dispatch, Bluetooth electronic fence and other systems and tools to effectively solve the city shared electric bicycle indiscriminate parking, road obstruction and other persistent problems; at the same time, through the exploration of big data, Internet of Things, cloud computing, artificial intelligence and other cutting-edge technologies, shared electric bicycle enterprises will be further intelligent in the operation of the whole chain of decision-making. This will further contribute to improving the efficiency of urban traffic, practicing green travel, meeting diversified travel needs, and embracing the arrival of a more inclusive city.

5.2.5 Enhance awareness of environmental protection and build a green long-term mechanism

The shared electric bicycle not only solves the problem of "last mile" travel in daily life, but also practices the concept of "energy saving and emission reduction, green travel" advocated by the government, and makes a practical contribution to China's "carbon neutral" work. The company is also making a real contribution to China's efforts to achieve "carbon neutrality". However, in the process, shared bicycles have also brought a series of negative externalities to urban governance; to further solve the common problems of the industry exposed through Hello Travel, from the perspective of vehicles, shared bicycle companies should promote and strengthen the whole life cycle management of products and establish a vehicle recycling mechanism; from the perspective of environmental consensus, shared bicycle companies should advocate civilized cycling for all users and From the perspective of environmental protection consensus, shared bicycle companies should promote civilized cycling and cultivate awareness of ecological protection.

5.2.5.1 Promoting full product lifecycle management

Hello Travel should face up to the issue of abandoned vehicles and recycling within the enterprise, set up a relevant department dedicated to the relevant business issues, and ensure the orderly implementation of the whole life cycle management of the product from the organizational structure, personnel awareness, performance assessment and other multi-dimensional. By establishing a mechanism for the recycling of abandoned vehicles. At the same time, the industry should establish a mechanism for self-governance and supervision, and advocate that all sectors of society fulfil their obligations to monitor and report the phenomenon of abandoned vehicles.

Establish a recycling mechanism for abandoned vehicles. Control the production, use, maintenance, and recycling of shared bicycles, and strictly follow the 3R principles, namely Reduce, Reuse and Recycle. For those bikes that have been on the market for more than three years and those that have seriously affected the riding experience, they will be dismantled and recycled and disposed of in a harmless manner. Based on the material differences of each part of the bike, the bike can be divided into four types of parts: tyres, basket, seat and other metal parts; the main body frame, wheels and other metal materials can be recycled into metal ingots; the plastic body can be made into plastic pellets and used as plastic runways and creative

household items after secondary processing; the cushion, tyres, handles and other parts that are difficult to decompose can also be The parts that are difficult to decompose, such as seat cushions, tyres and handles, can also be treated in an environmentally friendly manner.

Establish a mechanism for industry autonomy and supervision. Implement a system of extended responsibility for the production and operation of shared bicycles, especially the responsibility of shared bicycle operators to protect urban resources and the environment, including product design, manufacturing, launch and operation, and waste recycling. It is important to abandon the previous model of "launch, operation and recycling" and to ensure a high degree of autonomy for the industry's shared bicycle companies to actively recycle their abandoned vehicles. People from all walks of life can report irregularities that affect the ecological environment, and the government can exercise its monitoring and enforcement powers in accordance with the law. For abandoned shared bikes that are unclaimed due to historical reasons, and whose responsible companies have withdrawn from the market or ceased their bicycle operations, the local authorities can step in and organize a centralized recovery and rectification process, and firmly rectify the various urban chaos derived from shared bicycles.

5.2.5.2 Promoting the concept of green development across the industry

The shared electric bicycle industry involves the practical interests of government, enterprises, users and social organizations, and the governance of shared electric bicycles is not only a matter for the shared electric bicycle enterprises, including Hello Travel, but also a public event that requires the active participation of the whole industry and the action of the whole industry. As the core body of governance, the shared bicycle companies They should advocate civilized travel and safe use of bicycles, build a green industrial ecology, and promote a civilized urban ethos. It is also important to promote the spirit of urban civilization.

Encourage users to travel in a green and civilized manner. Hello Travel should further establish and improve the code of conduct for the use of bicycles, promote and encourage the civilized use of shared bicycle products; use the motorcycle travel records, car-end Bluetooth determination, APP user behavior analysis and other means to monitor and punish the uncivilized use of bicycles by users, for illegal parking, intentional damage to vehicles, private locking and other violations, different degrees of breach of trust may be implemented such as deduction of Sesame credit score In addition, we will also encourage and mobilize enthusiastic users to take advantage of the new scheme. At the same time, enthusiastic users are encouraged to find and report all kinds of irregularities in the sharing of motorcycles, which will be updated through the platform's small program/APP and other channels, and the platform will reward users with points, which can be exchanged for certain in-kind incentives. At the same time, the shared bicycle industry can unite with other sharing economy-type enterprises, such as shared rechargeable batteries and shared cars, to establish a joint incentive mechanism for trustworthiness and a joint disciplinary mechanism for failure to trust, and open up the sharing economy credit files of individual users. This will help maintain a clean and healthy sharing economy.

Leading the way in building a green industrial ecology. The whole life cycle management of shared electric bicycles cannot be achieved without the collaboration and support of upstream and downstream enterprises. The upstream manufacturing enterprises, midstream and downstream shared electric bicycle operation enterprises and supporting urban third-party vehicle operation and maintenance enterprises are interdependent and eco-win-win. In the case of Hello Mobile, for example, there are more than 400 upstream and downstream suppliers covering the fields of vehicle manufacturing, communication technology, basic materials, rough processing of sheet metal cabinets, electrical power supplies, etc. Its shared electric bicycle operating enterprises have a core dominant position in the industrial ecology, so it is reasonable to encourage upstream and downstream enterprises to uphold the concept of sustainable operation and management of the ecological environment and set higher standards for environmental protection production and operation. For example, in the early stages of product design, the 3R principles should be incorporated into the design concept. The design of motorcycles should not only reduce the consumption of materials and resources, but also consider the emission of harmful substances. In the operation and maintenance of vehicles after launch, the life cycle of wearable parts should be further improved, and sustainable recycling of vehicle parts should be ensured for quasi-abandoned vehicles that seriously affect cycling.

At the same time, Hello Travel can regularly join hands with professional green recycling organizations to organize external green public welfare activities in the name of the shared electric bicycle industry, such as joining hands with universities, public welfare organizations and art institutions to carry out the "new life of old vehicles" public welfare project. For example, we can join hands with universities, public welfare organizations and art institutions to launch a public welfare project called "New Life for Old Bikes", in which discarded vehicle parts are assembled and put together into new products through entrepreneurial design. The project aims to transform "urban garbage" into creative products, and to promote the construction of a green industrial ecology in the whole industry.

5.2.5.3 Strengthening the spiritual civilization of the city

To strengthen the spiritual civilization of the shared electric bicycle industry, shared electric bicycle enterprises can assist government departments to further improve non-institutional construction, so as to achieve effective governance of shared electric bicycles, enterprises to fulfill their social responsibility, and advocate civilized "shared" use of bicycles by all people. Government departments can set up a platform for urban civilization and incorporate "green travel and civilized use of bicycles" into the rules and regulations for the construction of urban spiritual civilization. Guide the bicycle sharing industry to actively promote and fulfill socially responsible corporate values based on its own development and the need to create a corporate culture. For example, companies can regularly organize socially meaningful activities such as "bicycle hunters" and "civilized riders", and the government can give extra points or recognition to bicycle sharing companies that have a good response from the public and have achieved significant results.

At the same time for the people, shared electric bicycle enterprises should also strengthen publicity work, such as new media publicity, social opinion monitoring, and the development of volunteer services, advocating all users to consciously practice urban road safety regulations, civilized riding and parking norms, awakening the public's sense of ownership, and advocating a new culture of mutual supervision and civilized travel in the mainstream ideology of society.



REFERENCES

- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic management journal*, 22(6-7), 493-520.
- Afuah, A., & Tucci, C. L. (2003). Internet business models and strategies: Text and cases (Vol. 2, p. 384). New York: McGraw-Hill.
- Ariely, D. (2000). Controlling the information flow: Effects on consumers' decision making and preferences. *Journal of consumer research*, 27(2), 233-248.
- Barbara, C., Cortis, D., Perotti, R., Sammut, C., & Vella, A. (2017). The european insurance industry: A PEST analysis. *International Journal of Financial Studies*, 5(2), 14.
- Belk, R. (2010). Sharing. *Journal of consumer research*, 36(5), 715-734.
- Belk, R. (2014). Sharing versus pseudo-sharing in Web 2.0. *The anthropologist*, 18(1), 7-23.
- Bouncken, R. B., & Reuschl, A. J. (2018). Coworking-spaces: how a phenomenon of the sharing economy builds a novel trend for the workplace and for entrepreneurship. *Review of managerial science*, 12(1), 317-334.
- Beattie, V., & Smith, S. J. (2013). Value creation and business models: Refocusing the intellectual capital debate. *The British Accounting Review*, 45(4), 243-254.
- Cai, X., & Pei, Y. (2021). Review of the Cycling Network Planning and Design in Chinese Cold-Climate Cities. *IEEE Access*, 9, 25291-25313.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long range planning*, 43(2-3), 195-215.
- Chen, F., Yang, B., Zhang, W., Ma, J., Lv, J., & Yang, Y. (2017). Enhanced recycling network for spent e-bicycle batteries: A case study in Xuzhou, China. *Waste Management*, 60, 660-665.
- Chen, J., & Chen, Y. F. (2006). The study of indicators system on technological innovation performance in enterprises. *Science of Science and Management of S. & T*, 26(3), 86-91.
- Cheng, M. (2016). Sharing economy: A review and agenda for future research. *International Journal of Hospitality Management*, 57, 60-70.
- Cheng, X., Fu, S., & de Vreede, G. J. (2018). A mixed method investigation of sharing economy driven car-hailing services: Online and offline perspectives. *International Journal of Information Management*, 41, 57-64.
- Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial and corporate change*, 11(3), 529-555.
- Christensen, C. M. (2001). Competitive advantage. *mit sloan management review*, 42(2), 105-109.
- Christensen, C. M. (2013). *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business Review Press.
- Ciulli, F., & Kolk, A. (2019). Incumbents and business model innovation for the sharing economy: Implications for sustainability. *Journal of cleaner production*, 214, 995-1010.

- Cockayne, D. G. (2016). Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy. *Geoforum*, 77, 73-82.
- Cohen, B., & Kietzmann, J. (2014). Ride on! Mobility business models for the sharing economy. *Organization & Environment*, 27(3), 279-296.
- Crommelin, L., Troy, L., Martin, C., & Pettit, C. (2020). Is Airbnb a sharing economy superstar? Evidence from five global cities. In *Disruptive Urbanism* (pp. 37-52). Routledge.
- Curtis, S. K., & Lehner, M. (2019). Defining the sharing economy for sustainability. *Sustainability*, 11(3), 567.
- Curtis, S. K., & Mont, O. (2020). Sharing economy business models for sustainability. *Journal of Cleaner Production*, 266, 121519.
- dos Santos Neves, J. F. (2018). ANALYSIS OF THE SHARING ECONOMY UNDER THE SOCIOECONOMIC ASPECTS. *REVISTA GEINTEC-GESTAO INOVACAO E TECNOLOGIAS*, 8(3), 4461-4475.
- Ewert, R., & Ernst, C. (1999). Target costing, co-ordination and strategic cost management. *European Accounting Review*, 8(1), 23-49.
- Gambardella, A., & McGahan, A. M. (2010). Business-model innovation: General purpose technologies and their implications for industry structure. *Long range planning*, 43(2-3), 262-271.
- Ganapati, S., & Reddick, C. G. (2018). Prospects and challenges of sharing economy for the public sector. *Government Information Quarterly*, 35(1), 77-87.
- Gobble, M. M. (2017). Defining the sharing economy. *Research-Technology Management*, 60(2), 59-63.
- Gössling, S., & Michael Hall, C. (2019). Sharing versus collaborative economy: how to align ICT developments and the SDGs in tourism?. *Journal of Sustainable Tourism*, 27(1), 74-96.
- Ha, H., & Coghill, K. (2006). E-government in Singapore-a SWOT and PEST analysis. *Asia-Pacific Social Science Review*, 6(2), 103-130.
- Harviainen, J. T., & Hamari, J. (2015). Seek, share, or withhold: information trading in MMORPGs. *Journal of Documentation*.
- Habibi, M. R., Davidson, A., & Laroche, M. (2017). What managers should know about the sharing economy. *Business Horizons*, 60(1), 113-121.
- Habibi, M. R., Kim, A., & Laroche, M. (2016). From sharing to exchange: An extended framework of dual modes of collaborative nonownership consumption. *Journal of the Association for Consumer Research*, 1(2), 277-294.
- Hawlitschek, F., Notheisen, B., & Teubner, T. (2018). The limits of trust-free systems: A literature review on blockchain technology and trust in the sharing economy. *Electronic commerce research and applications*, 29, 50-63.
- Hill, C. W., Jones, G. R., & Schilling, M. A. (2014). *Strategic management: Theory & cases: An integrated approach*. Cengage Learning.
- John, N. A. (2013). The social logics of sharing. *The Communication Review*, 16(3), 113-131.

- Kang, S., & Na, Y. K. (2018). The effect of the relationship characteristics and social capital of the sharing economy business on the social network, relationship competitive advantage, and continuance commitment. *Sustainability*, 10(7), 2203.
- Kanter, R. M. (2012). How Great Companies Think Differently?. *NHRD Network Journal*, 5(1), 1-12.
- Kathan, W., Matzler, K., & Veider, V. (2016). The sharing economy: Your business model's friend or foe?. *Business Horizons*, 59(6), 663-672.
- Lee, J., Kim, J., Kim, H., & Hwang, J. (2020). Sustainability of ride-hailing services in China's mobility market: A simulation model of socio-technical system transition. *Telematics and informatics*, 53, 101435.
- Leng, M., & Parlar, M. (2005). Game theoretic applications in supply chain management: a review. *INFOR: Information Systems and Operational Research*, 43(3), 187-220.
- Li, B., Kisacikoglu, M. C., Liu, C., Singh, N., & Erol-Kantarci, M. (2017). Big data analytics for electric vehicle integration in green smart cities. *IEEE Communications Magazine*, 55(11), 19-25.
- Li, Z., Wang, W., Yang, C., & Ding, H. (2017). Bicycle mode share in China: a city-level analysis of long term trends. *Transportation*, 44(4), 773-788.
- Lindgardt, Z., Reeves, M., Stalk, G., & Deimler, M. S. (2009). Business model innovation. When the Game Gets Tough, Change the Game, The Boston Consulting Group, Boston, MA, 118.
- Malhotra, Y. (2002). Knowledge management and new organization forms: A framework for business model innovation. In *Intelligent Support Systems: Knowledge Management* (pp. 177-199). IGI Global.
- Mateo-Babiano, I., Bean, R., Corcoran, J., & Pojani, D. (2016). How does our natural and built environment affect the use of bicycle sharing?. *Transportation Research Part A: Policy and Practice*, 94, 295-307.
- Martin, C. J. (2016). The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?. *Ecological economics*, 121, 149-159.
- Mason, K., & Spring, M. (2011). The sites and practices of business models. *Industrial marketing management*, 40(6), 1032-1041.
- Morgan, N. A. (2012). Marketing and business performance. *Journal of the academy of marketing science*, 40(1), 102-119.
- Pospíšil, K., Mečiarová, D., Hanzelková, A., & Keřkovský, M. A Strategic Approach to the Transformation of Czech Highway Administration.
- Porter, M. E. (2011). Competitive advantage of nations: creating and sustaining superior performance. *simon and schuster*.
- Rangone, A. (1997). Linking organizational effectiveness, key success factors and performance measures: an analytical framework. *Management accounting research*, 8(2), 207-219.
- Ren, M., & Wang, L. (2020). Innovative localization of Costco Paid Membership Model in China Based on PEST Analysis. In *2020 International Conference on World Trade and Economic Development*
- Richardson, J. E. (2005). The business model: an integrative framework for strategy execution. Available at SSRN 932998.

- Richardson, L. (2015). Performing the sharing economy. *Geoforum*, 67, 121-129.
- Sabherwal, R., Hirschheim, R., & Goles, T. (2001). The dynamics of alignment: Insights from a punctuated equilibrium model. *Organization science*, 12(2), 179-197.
- Schumpeter, J. A. (2017). *The theory of economic development: An inquiry into profits, capita I, credit, interest, and the business cycle*. Routledge.
- Schwaninger, M. (1986). Strategic business management in tourism. *Tourism Management*, 7(2), 74-85.
- Shank, J. K. (1996). Analysing technology investments—from NPV to strategic cost management (SCM). *Management Accounting Research*, 7(2), 185-197.
- Shank, J. K., Shank, J. H., Govindarajan, V., & Govindarajan, S. (1993). Strategic cost management: the new tool for competitive advantage. Simon and Schuster.
- Sharma, P., Chrisman, J. J., & Chua, J. H. (1997). Strategic management of the family business: Past research and future challenges. *Family business review*, 10(1), 1-35.
- Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business model innovation through trial-and-error learning: The Naturhouse case. *Long range planning*, 43(2-3), 383-407.
- Talib, M., Hamid, A. B., Zulfakar, M., & Jeeva, A. (2014). Halal logistics PEST analysis: the Malaysia perspectives. *Asian Social Science*, 10(14), 119-131.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long range planning*, 43(2-3), 172-194.
- Wang, F., & Forgionne, G. (2007). EBBSC: a balanced scorecard-based framework for strategic e-business management. *International Journal of E-Business Research (IJEBR)*, 3(1), 18-40.
- Weaver, V., Hacker, J. S., & Wildeman, C. (Eds.). (2013). *The ANNALS of the American Academy of Political & Social Science* (Vol. 651). SAGE.
- Li M.L. (2020). Analysis of the operation mode of food e-commerce platform. *Food Research and Development* (21), 231. doi:.
- Wells, P., & Lin, X. (2015). Spontaneous emergence versus technology management in sustainable mobility transitions: Electric bicycles in China. *Transportation Research Part A: Policy and Practice*, 78, 371-383.
- Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business models: Origin, development and future research perspectives. *Long range planning*, 49(1), 36-54.
- Zhang, D., Yu, C., Desai, J., Lau, H. Y. K., & Srivathsan, S. (2017). A time-space network flow approach to dynamic repositioning in bicycle sharing systems. *Transportation research part B: methodological*, 103, 188-207.
- Zott, C., & Amit, R. (2009). The business model as the engine of network-based strategies. *The network challenge*, 259-275.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: recent developments and future research. *Journal of management*, 37(4), 1019-1042.
- Zhu, K., Kraemer, K. L., & Dedrick, J. (2004). Information technology payoff in e-business environments: An international perspective on value creation of e-business in the financial services industry. *Journal of management information systems*, 21(1), 17-54.