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New energy network car-hailing maintenance service business plan

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Master in Business Administration

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BUSINESS
SCHOOL

Department of Marketing, Operations and General Management

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Dedication

To my esteemed mentors and professors, whose unwavering guidance and profound wisdom illuminated my academic path, shaping this research into a meaningful contribution.

To my beloved family and friends, whose endless support and encouragement became my anchor during moments of challenge, reminding me of the purpose behind perseverance.

To policy makers and researchers, whose vision and dedication set the foundation for a cleaner tomorrow.

To every skilled technician who promotes technical progress, their hands not only repair the machine, but also promote and improve the green transportation ecosystem.

To every new energy vehicle driver, it will help to write a greener chapter for our city.

To all the practitioners and researchers in the development of the new energy vehicle industry. It is hoped that this research can contribute to the sustainable development of the industry and promote the progress of green travel and intelligent maintenance services.

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Resumo

Com o forte apoio do govemo províncial de Guangdong no campo de veículos de novas energias, o nível tecnológico dos veículos de novas energias desenvolveu-se rapidamente. Nesse contexto, a velocidade da atualização do veículo é muito mais rápida do que antes. Com a rápida promoção de veículos de novas energias e serviços de carro e a redução significativa do custo por quilometro em comparação com veículos a gasolina um grande número de proprietários optou por participar dos serviços de carro em período integral ou em meio período. O problema é que a quilometragem do veículo aumenta rapidamente e o desgaste do veículo aumenta, e a manutenção e reparo de serviços de veículos de novas energias são extremamente importantes. Nessa situação, para se adaptar ao novo desenvolvimento de veículos de novas energias, a indústria de manutenção automotiva deve melhorar a tecnologia de manutenção passada e atualizar a conscientização do serviço, formando um novo serviço de manutenção de pista para veículos de novas energias.

Este artigo foca na análise do ambiente externo e interno de novos projetos de manutenção e pós-venda de veículos energéticos, analisa as oportunidades e ameaças enfrentadas pelo ambiente abrangente, combina questionários de grupos de clientes e previsões de desenvolvimento de mercado, formula planos de implementação correspondentes e analisa riscos de mercado, de tecnologia e riscos do projeto, para aferir da viabilidade de novos planos de serviços de automóveis energéticos.

Palavras-Chave: Serviço de transporte de nova energia: Serviços de manutenção Análise de viabilidade: Análise de risco

JEL Classification: M31

Abstract

With the strong support of the government of the Guangdong province in the field of new energy vehicles, the technological level of new energy vehicles has rapidly developed. In this context, the speed of vehicle updates is much faster than before. with the rapid promotion of new energy vehicles and ride-hailing services, as well as the significant reduction in the cost per kilometer compared with gasoline vehicles, a large number of car owners choose to join the ride-hailing services either full-time or part-time. the problem is the rapid increase of vehicle milage and the increase of vehicle wear and tear, and the maintenance and repair of new energy vehicle service are extremely important. in this context, if the automotive maintenance industry wants to adapt to the new development of new energy vehicles, it must improve on past maintenance technology and update service awareness, thus forming a new track - maintenance services for new energy vehicles.

This thesis selects the analysis of the external environment and internal environment of the new energy vehicle maintenance and after-sales projects, analyzes the opportunities and threats to the comprehensive environment, using a survey of customer groups, conducts a market development research and prediction, formulates the corresponding implementation plan and conducts an in-depth analysis on market risks, technical risks, and other project risks, demonstrating the feasibility of the new energy ride hailing maintenance service plan.

Keywords: New energy ride hailing services; Maintenance services; Feasibility analysis; risk analysis

JEL Classification: M31

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Glossary

AD - Aggregate Demand

CPI-Consumer Price Index

GDP - Gross Domestic Product.

GNP-Gross National Product

SWOT - Strengths, Weaknesses, Opportunities, and Threats

1. Introduction

In the current market, many auto repair shops generally lack the professional ability to repair new energy vehicles, so 4S stores and official authorized stores have become the main channels for the maintenance of new energy vehicles. however, the number of these maintenance points is still limited, and it is difficult to keep up with the rapid growth of the new energy vehicle market, and the urgent need for more maintenance enterprises with professional qualifications to join them. in view of this, this project is committed to the field of new energy vehicle maintenance, especially to provide services for specific online ride-hailing groups. we hope to establish close cooperation relations with more industry partners and jointly build a win-win after-sales comprehensive service ecosystem for new energy vehicles. this ecosystem will provide high-quality consumption experience and one-stop solutions for the majority of online ride-hailing owners, aiming to become a model of independent third-party after-sales enterprises such as Tuhu Car Raising.

In China, the national policies strongly support the development of the new energy vehicle industry and the increasing environment of the purchasing power level of customers, people's intention to buy new energy vehicles and vehicle after-sales and maintenance demand has gradually increased, and the industry has developed rapidly, at the same time, the competition within the industry is becoming more and more fierce.found in the process of research enterprise has some problems, for example, the use of intelligent maintenance system, use of AI and big data to realize accurate diagnosis, battery management and maintenance process how to accurately monitor battery health, In the process of maintenance and after-sales service, it is necessary to improve the professional skills of maintenance personnel, how to improve the user service experience, improve the layout of maintenance points, and improve the service coverage etc.

This thesis is based on the research of marketing theory, discover and improve the problems encountered in the actual operation of the company, analysis of the company's comprehensive environment and the industry's competitive environment,

find your current company's strengths, disadvantages and opportunities and threats, with the aid of the STP theory, to segment and position the target markets, by the collection and analysis of data from the questionnaire of the customer base, understand the needs, preferences, and behaviors of specific customer groups, improved customer experience, collect customer feedback on existing products or services, find the deficiencies and improve them, improve satisfaction, develop precision marketing strategies, according to customer characteristics and behavior habits, develop a more effective marketing plan, improve your products or services.

We are a small and medium-sized startup company, we need to find our own industry positioning and suitable development path, improve and implement the process of marketing strategy, to achieve sustainable development of the company.

The research purpose of this thesis;

- Improve maintenance efficiency, shorten maintenance time and improve efficiency through intelligent and automatic technology.
- Reduce maintenance cost, make maintenance process transparent.
- Extended vehicle life, through accurate battery management and fault prediction.
- Improve user experience, provide transparent and convenient maintenance services, and enhance user satisfaction.
- Promote environmental protection and reduce the environmental impact.
- Promote the healthy development of the new energy vehicle maintenance industry,etc.

The project design structure is divided into five chapters, the first chapter is introduced. Chapter 2 introduces the literature review, and Chapter 3 is the methodology, detailed methods for research and implementation of the project. Chapter 4 introduces the business plan, including the analysis of the integrated project environment, the feasibility analysis of the marketing plan, and the implementation plan. The final chapter the conclusion,the study results are integrated.

2. Literature Review

2.1. New energy network car-hailing and maintenance service marketing

2.1.1. Beneficial to online ride-hailing car owners

Project cancel intermediate 4S shop artificial level spreads and without SanDian warranty network about car users provide lower service price, than 4S shop for network about car owners provide high quality guarantee, convenient, stable and reliable food after-sales service, through online booking, offline to store direct service arrangement, effectively improve service efficiency, to save time, reduce the purpose of the user lack of car.

2.1.2 Conducive to Online rental businesses

As explored by Scott Brown (2020), according to the data analysis of the automobile industry association data check platform, we know that the number of registered ride-hailing service companies in Guangdong province has reached a significant 1211, among which 251 are in Guangzhou and 12 in Jiangmen. however, when we turned to the field of online ride-hailing maintenance service, we found that the number of registered maintenance service companies in Guangdong province was relatively small, only 215, among which 48 were in Guangzhou and only 2 in Jiangmen city. The actual situation may be even more serious. in view of the fierce competition in the online ride-hailing service market, improving the competitiveness of the company has become an urgent demand for the development of the industry. Jin Pyo hong(2020) examines in the many strategies to enhance competitiveness, strengthening the quality of after-sales service is undoubtedly a very powerful measure. therefore, our project is committed to helping ride-hailing service companies improve their competitiveness and attract more full-time ride-hailing car owners to join us by providing high-quality services.

2.1.3. Favorable for new energy vehicle manufacturers

Yafet Eka Prasetya (2019) discuss at present, many new energy manufacturers are committed to building their own service project system. take Nio as an example, its electric switching service is one of the important measures. however, the cost to fully

support such services is enormous and time-consuming. in view of this, it is undoubtedly a wise and feasible choice to cooperate with our company and other enterprises focusing on new energy maintenance. through cooperation, both sides can share the financial pressure, shorten the project cycle, and achieve mutual benefit and win-win situation.

2.2. External situational analysis

Nikunj Kumar Jain (2019) highlighted with the enhancement of environmental awareness and the government's vigorous promotion of new energy vehicles, the new energy vehicle market has shown explosive growth. as a new way of travel, online ride-hailing has also gradually included new energy vehicles into its service scope.

Manel Ben Ayed (2019), the maintenance service of new energy vehicles is facing many challenges and opportunities. Through the research of the relevant literature, he analyzed the external situation of the new energy network ride-hailing maintenance service, in order to provide reference for the formulation of business plans.

As explored by Famiyeh Samuel (2018), the popularity of cars has driven the demand of the maintenance market. according to statistics, the number of new energy vehicles in China has grown rapidly in recent years, and it is expected to exceed 50 million by 2025. Samuel Famiyeh (2018) examines This trend makes the new energy vehicle maintenance market has a broad space for development. at the same time, there are differences between new energy vehicles and traditional fuel vehicles in the power system and electrical system, resulting in their different maintenance and maintenance needs, which further promotes the professional development of new energy vehicle maintenance services.

Aleksander Lotko (2018) sorted out New energy vehicle maintenance technology is facing the problems of fast replacement, shortage of professional talents and high maintenance costs. with the continuous innovation of the new energy vehicle technology, the maintenance technology needs to keep pace with the times. however, the relative lack of new energy vehicle maintenance technical personnel, limited the development of maintenance services. in addition, the parts of new energy vehicles are expensive, and the maintenance process is complex, resulting in high maintenance costs. these problems bring challenges to the new energy vehicle

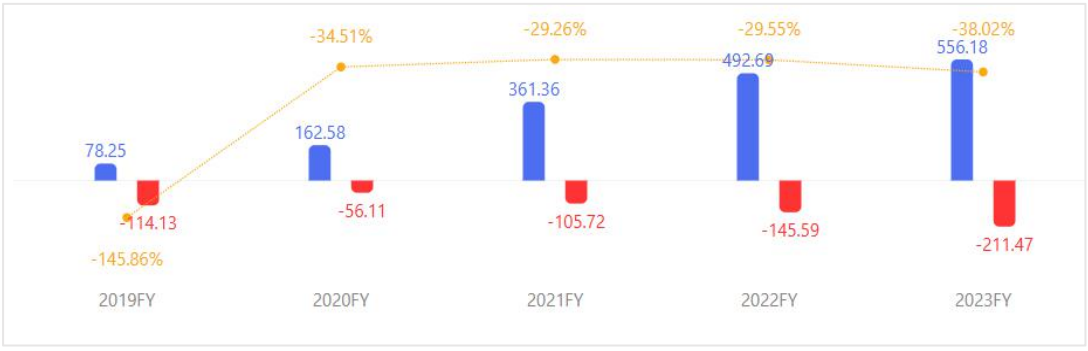
maintenance service.

To sum up, the new energy network taxi maintenance service business is facing a broad market demand and many challenges. in order to seize market opportunities and cope with challenges, maintenance service agencies need to strengthen technology research and development and personnel training, improve the level of maintenance technology and service quality. at the same time, actively pay attention to policy changes and industry standards to ensure the compliance and sustainable development of the business. in addition, intelligent and networked service models can also be explored to improve maintenance efficiency and customer satisfaction. Through the implementation of these measures, the new energy network ride-hailing and maintenance service business will be expected to achieve rapid development.

2.3. Internal situation analysis

After in-depth analysis and rigorous research, the new energy vehicle aftermarket is gradually becoming a key field for automobile manufacturers and their dealers to obtain benefits, especially in the context of the general decline in new car sales and profits. Previously, Elistina Abu Bakar (2017) has clearly pointed out that the current manufacturers engaged in pure electric new energy vehicles are generally facing the dilemma of loss, the average loss of each car as high as 100,000 yuan. By consulting the annual statements of new energy enterprises, it is not difficult to find that the industry has shown a saturation trend, and the profitability has significantly decreased significantly, as shown in Figure 2.1 and 2.2, in recent years, new energy enterprises are generally facing a certain degree of losses.

Figure2. 1 Nio annual report in recent years



Revenue trend Unit: (100 million yuan) ■operating receipt ■net margin ■net profit rate

Source: China Association of Automobile Manufacturers(2023)

Figure 2.2 Annual report of Xiaopeng Automobile recently

Revenue trend Unit: (100 million yuan) ■operating receipt ■net margin ■net profit rate

Source: China Association of Automobile Manufacturers(2023)

Although the new energy vehicle manufacturing industry is facing certain challenges, the new energy vehicle aftermarket has shown great development potential, providing new profit growth points for automobile oems and their dealers. at present, although the auto repair market is large and small repair shops occupy the majority share, but the wave of industry change is coming. Krzysztof Zagrajek（2025）according to the calculation of professional institutions, guess in the next five years, the number of after-sales service maintenance stores will be greatly reduced, from the current nearly 900,000 to about 400,000, those who do not support new energy maintenance stores may be eliminated. therefore, it has become an urgent need of the industry to build a perfect comprehensive service system and improve the service quality and efficiency of the new energy network ride-hailing aftermarket.

2.4.SWOT analysis

2.4.1. Advantage

New energy vehicles, with their rapid growth momentum and highly competitive prices, are strongly driving the vigorous development of the online ride-hailing market. China's new energy vehicle industry has maintained a leading position in the world, which is due to the increasing production of new energy vehicles, as well as a series

of supporting policies such as the "Plan for the Promotion and Application of New Energy Vehicles" and "Guidelines for the Promotion of New Energy Vehicles Demonstration City" issued by the government. at the same time, many cities have implemented strict emission standards for online ride-hailing, which requires online ride-hailing companies to give priority to new energy vehicles to meet the needs of urban online ride-hailing services, thus further promoting the wide application of new energy vehicles in the field of online ride-hailing.

Mariusz Izdebski（2024）discuss the demand of the online ride-hailing after-sales maintenance market performance is abundant. with the continuous upgrading of consumer demand, especially in long-distance ride-hailing not only needs to ensure the safety of passengers, but also needs to improve internal comfort, cleanliness and entertainment facilities to meet the diversified needs of passengers for long-distance travel. at the same time, the part-time car owners have a high degree of care for the vehicles, which further promotes the strong demand for the maintenance and beauty market.

Erdinç Fatma Gülşen. (2023) according to the relevant data, the current automotive maintenance industry technicians degree generally low, the new knowledge learning application ability, which leads to able to adapt to the needs of new energy automobile maintenance industry development technical personnel scarce, can efficient maintenance of new energy automobile store number is limited, it is difficult to fully meet the growing demand of the market.

2.4.2. Disadvantage

Fallah Narjes（2022）discuss the market share is small. at present, china's automobile maintenance market share is occupied by upstream enterprises and party a enterprises, which makes emerging enterprises appear "congenital deficiency" in the process of development, there are many problems that have not been effectively solved for a long time, thus lack of internal power for independent development. for the traditional 4S stores, facing the change of the current market structure, they will try their best to regain the lost market share.

Anthony Jnr（2021）discuss new energy automobile and auto parts industry is

unstable. with the rapid rise of the new energy vehicle market and the impact on the traditional automobile market, the traditional auto parts dealer channel has gradually shown powerless. XueFeng Jiang （2024）discuss the current new energy auto parts industry is still in the early stage of development, has not yet formed a perfect market system and supply chain, resulting in the acquisition of some key auto parts become particularly difficult, which undoubtedly has a direct impact on the smooth progress of the project.

2.4.3. Opportunities

As explored by Yu Cai (2024), Internet Help project upgrade. with the advantages of Internet technology, we can more effectively deliver information to consumers, so as to facilitate consumers to compare and choose information. at the same time, we can quickly get consumer feedback to adjust and optimize services. Tong Ziqiang（2023）discuss by conducting market publicity through the Internet and actively building the private domain of ride-hailing users, we can provide more targeted after-sales service services for ride-hailing owners, so as to further improve user satisfaction and loyalty.

Wei Li（2023）discuss online-hailing has new demand for services. with the continuous improvement of people's requirements for online ride-hailing services, the order evaluation has an increasingly significant impact on the order volume of car owners. we are committed to providing a full range of high-quality service packages for our cooperative online ride-hailing companies and car owners, including "vehicle beauty cleaning and maintenance + charging" and "intelligent system maintenance and upgrade + battery maintenance". we firmly believe that, with high-quality service and efficient operation, we will win the high trust and loyalty of the majority of online ride-hailing car owners, and then promote the continuous expansion of the business scale of the project, and significantly enhance the visibility and influence of the project.

Wang Yanliang （2023） discuss investment and financing are highly attractive. in recent years, the state has successively promulgated and implemented a series of policies and measures, in order to further improve the standardization level of the automobile aftermarket and ensure that the rights and interests of consumers are

effectively protected, especially strengthen the supervision of the automobile aftermarket. in order to maintain the healthy and orderly development of the market, vigorously improve the current market environment.

Yuan Weiming (2023)highlighted it shows that the country attaches great importance to the aftermarket. at the same time, a number of highly trusted automobile aftermarket release information platforms have emerged, therefore, the financing times of the automobile aftermarket has increased, and its investment value has been widely recognized. in the past, the investment was mainly focused on the automobile manufacturers, aiming to realize the integration of the industrial chain, and then enhance the brand influence and market competitiveness. at present, Quancheng Wu（2023）highlighted many investors do not focus on the automotive sector, but rely on their respective investment vision to make investment decisions. for example, Internet giants 360, Tencent and some funds organizations have actively participated in investment activities. at present, the huge value of the new energy after-sales maintenance market has won the favor of a large number of investors, and its investment scale is also quite significant.

2.4.4. Threats

As explored by Min Yohan（2023），maintenance personnel have different skills. at present, China has not yet formulated a unified standard for new energy maintenance technology, which leads to some small maintenance shops to repair customers' vehicles without authorization without the corresponding maintenance technology. this phenomenon not only disturbs the market order, but also transfers the potential risks to the car owners, posing a threat to the rights and interests of the majority of car owners. on the basis of comprehensive consideration of many other factors, the professional skills of maintenance personnel will play a crucial and decisive role in the overall development of the project. Therefore, first of all, the country needs to standardize the new energy maintenance aftermarket and establish a reasonable supervision system. secondly, higher standards and set for the professional ability of technical personnel.

White Chris（2023）examines competition for online ride-hailing maintenance has

increased. through in-depth analysis of the data of ride-hailing, we can clearly see that many enterprises have flooded into the market to get a share of the pie. In this new energy online ride-hailing aftermarket market, large enterprises, with their strong financial strength, advanced technology level and extensive market layout, can often occupy a dominant position and obtain more market share and profits.

2.5. Segmentation Targeting and Positioning

2.5.1. Segmentation

Kotler (2016) emphasizes that market segmentation is the basis of marketing strategy, and new energy vehicle maintenance services can be subdivided according to customers' geographical location, behavioral characteristics (such as frequency of use) and psychological characteristics (such as environmental awareness).

Phase 1: The initial development stage

- Introduce external investment, complete the construction of new energy network car-hailing maintenance store, build a team with dedication, responsibility and professional ability, and carry out business operation and Set up small and medium-sized startups;
- Improve the management system and establish a complete new energy network ride-hailing maintenance service operation system;
- Promote the cooperation process with new energy vehicle brands and insurance companies, and strive to reach cooperation with 70% of the new energy vehicle brands and insurance companies in the market within one year;and cover the whole prefecture-level city of Jiangmen city by the end of 2023;
- Synchronously develop new energy network car-hailing after-sales one-stop service, and support the reliable team for equipment research and development and maintenance technology improvement;

-Carry out comprehensive market publicity and promotion, carry out the promotion and operation of Wechat public account, TikTok, Xiaohongshu and other we-media, mainly target the group of online car owners, improve attention, and improve the market share of after-sales maintenance project.

Phase 2: Growth phase

-Improve the operation model and system of operation management, build a stable and reliable team, and establish regional management;

- With the purpose of marching into economically developed cities, it can establish a firm foothold in the Pearl River Delta region at the end of 2025;

- With the continuous expansion of the business scale, integrate the new energy network vehicle-hailing maintenance service projects, improve the reputation of service, and strive to lead the industry;

- Combined with the government's favorable policies, improve the breadth of development and good economic rate of return, and achieve sustainable and stable development;

- To become an independent third-party after-sales enterprise like Tuhu Car, make great strides forward.

Phase 3: Project maturity stage

- Based on the new energy network about car maintenance services as the pillar, with new energy market more strategic layout industry linkage, by expanding service category, optimize service products and related content, expand new energy market to realize the comprehensive layout, promote the company in the new energy market after a new round of rapid growth;

- Learn and implement the business model of top companies. it is found that the business model adopted by Tuhu Car is conducive to improving the circulation efficiency of automobile aftermarket services and reducing the cost. can help enterprises achieve the purpose of enhancing core competitiveness.

- By 2028, We look forward to the company can become one of the leading enterprises focusing on the field of new energy network ride-hailing maintenance and after-sales service in China.

2.5.2. Targeting

Merfeld Tanja （2022） highlighted opening a store, assessing risks and locating it properly is crucial to the success of the store. In general, the following three geographical locations are considered ideal for opening a shop. first, large residential

areas are the preferred places to open a shop. when opening a shop here, the owners of online ride-hailing can easily go to the shop to maintain the vehicles without detour, thus improving the convenience and saving time, which is in itself is an effective signboard publicity. secondly, gas stations and new energy sales stores are also the ideal location. at present, many car repair shops have chosen to open in these areas, the owner in refueling or simple inspection of the vehicle, is often the vehicle after a long distance, it is the right time to maintain the vehicle. finally, it is also suitable to open shops near the roads with large traffic flow. considering the practical conditions, the site selection of this project is scheduled to be built in The Pearl River Delta region with Guangdong province as the core layout, in order to achieve the best commercial benefits.

2.5.3. Positioning

Ries and Trout (2001) emphasize that the core of emphasizing market positioning is to occupy the minds of customers.and new energy vehicle maintenance services can attract target customers by emphasizing the differentiated positioning such as "green environmental protection" and "technological innovation".

This project is a professional after-sales maintenance service project for online ride-hailing groups, aiming to provide comprehensive, efficient and high-quality maintenance guarantee for the majority of online ride-hailing drivers. We will provide comprehensive maintenance support for the engine, chassis, electrical system and air conditioning system for online ride-hailing vehicles to ensure that the vehicle is always in good running condition. in addition, this project will also provide troubleshooting services. using advanced diagnostic equipment and technology, we can quickly and accurately locate vehicle faults and provide targeted solutions for customers, thus effectively shorten the maintenance cycle and improve maintenance efficiency. at the same time, we also pay attention to the preventive maintenance work. according to the use situation and maintenance needs of the vehicle, we will provide regular maintenance, inspection and replacement of wearing parts for online car-hailing vehicles, so as to extend the service life of the vehicle and reduce the possibility of failure.

2.6. Marketing Mix

Some emerging automobile manufacturing enterprises aim to meet consumers' expectations for the demand for charging and changing of new energy vehicles and the maintenance of three-power systems by independently building post-market service channels. these new energy vehicle manufacturers are committed to providing consumers with high-standard and high-quality service experience. however, with the rapid growth of the ownership of new energy vehicles, the demand for services has increased sharply. at the same time, the rapid upgrading of new energy vehicle technology also poses a severe challenge to car manufacturers. due to the limited resources, it is often difficult for car manufacturers to take into account the demand of the aftermarket, and it is difficult to effectively deal with the discrete problem of customer demand in the post-market.

Product

The launch of new energy vehicle maintenance service products should take into account the establishment of a connection between new products and customer service, and improve customer satisfaction through continuous innovation and intimate service. Kotler and Keller (2016) emphasize the importance of product life cycle management and innovation to market competitiveness, and point out that new energy vehicle maintenance services need to combine technological innovation and customer needs to provide differentiated service products.

Armstrong (2020) product development should be developed around customer value, and new energy vehicle maintenance services can improve customer satisfaction through customized services and value-added services .

Price

Pricing should always be combined with customer perception and experience, open, transparent and competitive prices are also important factors in retaining customers. Nagle (2016) proposed a value-based pricing strategy, emphasizing that the pricing of new energy vehicle repair services should reflect its technical complexity and customer-perceived value, rather than just based on cost.

Smith (2011) discussed the competitive pricing strategy, and suggested that the new energy vehicle maintenance services can attract customers in different market

segments through dynamic pricing and package pricing.

Place

The establishment of channels should facilitate the use and experience of customers to the greatest extent, and continuously increase customer satisfaction in the service process. Rushton (2014) emphasizes that the design of distribution channels should pay attention to efficiency and customer convenience, and the new energy vehicle maintenance service can optimize the service network layout through the combination of online and offline methods.

Christopher (2016) proposed to focus on customer service experience, and the new energy vehicle maintenance service can improve customer satisfaction through the establishment of a rapid response mechanism and a regional service center.

Promotion

Channel promotion is the key way to enhance brand awareness, and use different new communication methods to expand the contact between enterprises and customers.

Belch(2018)emphasizes the importance of integrated marketing communication, and new energy vehicle maintenance services can enhance brand awareness through social media, content marketing and customer education.

With the rapid development of the new energy industry, the new energy online ride-hailing aftermarket has shown great development potential and opportunities. starting with the characteristic differences between new energy vehicles and traditional vehicles, it discusses the characteristics of the new energy vehicle maintenance industry and the changing demand for maintenance equipment and talents in the environment of the effective connection between new energy vehicles and traditional vehicle maintenance. compared with fuel vehicles, new energy vehicles show more characteristics of scientific and technological products, which often involve the software level, which need to be solved by close cooperation between the OEMS software system upgrading and suppliers, rather than by simple replacement of parts.

3. Methodology

First of all, a deep understanding of the current situation, scale and future growth trend of the new energy vehicle market. This includes the statistical analysis of the sales volume and ownership of new energy vehicles, as well as consumers' demand and expectations for the maintenance services of new energy vehicles. At the same time, it should also analyze the existing new energy vehicle maintenance service network in the market, understand their service mode, service quality, price strategy, etc., and find out the market gap and opportunity points.

In this project, we use the literature review method, external situation analysis (using PEST analysis, industry analysis, Porter’s model to competitor analysis and customer analysis). The SWOT model uses the company to analyze the company's integrated environment, including internal advantages, disadvantages and external opportunities and threats.

Because the technical characteristics of new energy vehicles are very different from those of traditional fuel vehicles, innovation also needs in maintenance services. For example, cloud terminals, big data and other technologies can be used to remote sense and fault diagnose vehicle operation data to improve the efficiency and accuracy of maintenance. at the same time, it can also explore the O2O mode of online reservation and offline services to provide customers with more convenient and efficient maintenance service experience.

Questionnaire method, the sample number is 50 people, and the customers are all customers who come to the store for vehicle maintenance and after-sales. Through the result analysis, we can understand the basic composition of the customers and the demand and satisfaction with the maintenance business process, so as to promote our better service to customers in the future.

Finally, financial planning and profit model design are also needed. Including the initial investment budget, operating cost budget, revenue forecast and profit cycle analysis. To ensure that the business plan is economically viable, profitable and sustainable.

4. Business Plan

4.1. Executive summary

With the rapid development of the new energy vehicle market, the demand for online ride-hailing market also shows a continuous growth trend, and the new energy online ride-hailing maintenance service market therefore shows a broad development prospect. By the end of December 2023, the number of registered ride-hailing drivers had exceeded 6.5 million, with 1.482 million new drivers added, according to data released by the Ministry of Transport. meanwhile, both the number and total orders of online ride-hailing vehicles in China reached a record high in 2023, reaching 674,000 and 9.114 billion units, respectively. detailed data show that since December 2022, the number of online ride-hailing users has increased significantly, with 90.57 million new users, with a growth rate of 20.7 percent.according to the survey data of Hello ride-hailing drivers, the annual mileage of ride-hailing is usually between 100,000 and 150,000 kilometers, which fully reflects the high frequency of ride-hailing as an operating vehicle. in particular, full-time online ride-hailing drivers, their annual mileage is generally between 80,000 and 120,000 kilometers, with an average of about 100,000 kilometers.

In view of the requirements of the average inspection and maintenance of new energy vehicles every 50,000 kilometers, combined with the relevant data of "2020 China's Automobile Aftermarket Maintenance Industry White Paper", the average unit price of customer maintenance of new energy vehicles in China in 2020 is 1373 yuan, higher than the 1032 yuan of traditional fuel vehicles. if calculated according to the annual maintenance of each online car-hailing vehicle twice, the new energy vehicles will generate at least 1.784.8 billion yuan. the development process of the new energy vehicle industry, the automobile aftermarket, and the current situation of the new energy vehicle aftermarket, etc. the new energy vehicle aftermarket has a strong growth momentum, and the development prospect is very considerable.

Transport, according to the latest data released as of October 31,2023, the nationwide network about car driver's card has reached more than 6.33400, net about car transport card also reached more than 2706000, net about car stock has reached

6 million mark, more than two and a half years ago, and the growth trend is continuing, as shown in Table 4.1. it is worth noting that in some cities, the proportion of new energy vehicles in online car hailing is even more than 90%, which fully demonstrates the wide acceptance of new energy vehicles in the user market and the huge user base, as shown in Table 4.2.

Table 4.1 Summary of online ride-hailing situations in some cities across China

Summary of online car-hailing conditions in some cities across the country							
city	The number of platform	Car license (ten thousand	Certificate (ten thousand)	Daily average order (ten thousand orders)	Daily order volume	Average daily revenue (yuan	Number shape date
Chengtu	144	19.69	23.12	116.1	16.7	263	2023.11.29
Guang zhou	118	17.34	27.2	-	13.34	325.03	2023.11.13
Chongqing	81	12.3	24.9	51.4	14.4	380.9	2023.12.7
Shenzhen	30	10.95	28.6		12.25	477.79	2023.9.30
Shanghai	15	7.6		109	11	418	Third quarter of 2023
Hangzhou	43	6	6	100			aggregate data
Xiamen	70	6.82		57.93	14.51	331.9	2023.9.30
Qingdao	70	5.9	10.5	63.2			2023.11.22
Tianjin	84	5.76	11.04	64.7	23% were below 5 orders		2023.9.30
Suzhou	22	4.8	13.08	55.75			2023.8.31
					77.3% were below 10 orders	260.83	aggregate data

Source: China Association of Automobile Manufacturers(2023)

Table 4.2 The proportion of online ride-hailing vehicles

Among them: new energy	In 2016,	In 2017,	In 2018,	In 2019,	In 2020,	In 2021,	In 2022,	In 2023,
Beijing	1942	2495	11884	5884	8324	18293	21288	23043
Guangzhou	354	4681	13728	37245	16551	23083	37513	47767
Hangzhou	2166	16770	22897	18869	8047	19475	34899	40192
Shanghai	9488	17640	12604	8795	10227	16582	24409	22902
Shenzhen	2185	8327	32692	29116	6632	27914	24925	29304
Tianjin	22	80	875	2617	5261	11672	4773	13375
New energy proportion	In 2016,	In 2017,	In 2018,	In 2019,	In 2020,	In 2021,	In 2022,	In 2023,
Beijing	19%	21%	59%	61%	61%	77%	86%	86%
Guangzhou	14%	35%	66%		97	99%	100%	100%
Hangzhou	45%	79%	79%	74%	75%	88%	96%	
Shanghai	29%	60%	53%	51%	72%	83%	90%	88%
Shenzhen	47%	63%	85%	96%	74%	96%	1006	100%
Tianjin	0%	2%	29%	58%	74%	73%	70%	70%

Source: China Association of Automobile Manufacturers(2023)

4.2. External situational analysis

4.2.1. PEST analysis

PEST analysis for the business plan of new energy network car-hailing maintenance service can be carried out from four dimensions: politics (Political), economy (Economic), society (Sociocultural), and technology (Technological):

4.2.1.1. Political factors

The state's strong support for the new energy vehicle industry, including car purchase subsidies, tax incentives, charging infrastructure construction and other policies, provides a strong guarantee for the popularization of new energy vehicles, but also indirectly promotes the development of new energy network ride-hailing and

maintenance service business. the government has strengthened the supervision of the automobile maintenance industry, including maintenance qualification audit, service quality supervision, etc., which will help to standardize the market order and improve the overall level of the new energy network ride-hailing maintenance service industry.

4.2.1.2. Economic factors

With the continuous growth of the domestic economy, consumers' purchasing power has increased, and the demand for high-quality and convenient new energy network ride-hailing and maintenance services has increased. the rapid growth of the new energy vehicle market has attracted many enterprises to enter the maintenance service field, intensifying the market competition. enterprises need to enhance their competitiveness by improving service quality and reducing costs. the country's implementation of more active fiscal policy and moderately loose monetary policy will help reduce the financing cost of automobile enterprises and provide financial support for the expansion of new energy network ride-hailing maintenance service business.

4.2.1.3 Social factors

With the enhancement of environmental awareness, consumers are more inclined to choose new energy vehicles, which also promotes the development of new energy network ride-hailing and maintenance service business. the younger generation of consumers pay more attention to the convenience and personalization of services, and new energy network ride-hailing maintenance services need to meet these needs to win market share. new energy vehicles involve safety issues such as high voltage and electricity, and consumers have high requirements for the safety and professionalism of maintenance services.

4.2.1.4 Technical factors

The continuous innovation of new energy vehicle technology, such as battery technology, drive motor technology, has put forward higher requirements for maintenance service, and also promoted the upgrade and innovation of maintenance

technology. the application of big data, artificial intelligence and other technologies makes the new energy network ride-hailing maintenance service more intelligent and efficient, and improves the quality and efficiency of service. the installation and maintenance of charging piles and the diagnosis and elimination of charging faults are an important part of the new energy network ride-hailing maintenance service. With the continuous progress of charging technology, the demand for this part of services will continue to grow.

To sum up, the new energy network ride-hailing maintenance service business plan should fully consider the political, economic, social and technical factors to ensure the feasibility and sustainable development of the business.

4.2.1.4.1 Technology of new energy network car-hailing maintenance

4.2.1.4.1.1 Technical essential

The whole vehicle system detection is a rigorous and necessary work. In order to ensure the accuracy and effectiveness of the diagnosis, professional diagnostic tools and professional software must be adopted to comprehensively check the electronic control system of the whole vehicle. during the detection process, the fault site can be accurately located by reading the fault code of the vehicle. the whole vehicle system inspection follows the following three main steps: firstly, determine the specific type of fault code; secondly, accurately find out the specific location and potential cause of the fault according to the fault code information; finally, comprehensive diagnosis results to determine whether the relevant parts should be replaced. Through this series of steps, the rigor, accuracy and high efficiency of the whole vehicle system detection can be ensured.

4.2.1.4.1.2 Case analysis

1. Scenario description

The failure of new energy vehicles cannot be charged, and this situation has appeared and needs to be solved urgently.

2. Diagnostic problems

First of all, we need to use professional automotive diagnostic machines to diagnose the battery charging system, in order to accurately identify and determine the specific

cause of the problem. Possible fault factors include, but are not limited to, battery damage, charge and discharge plug failure, and charge and discharge line problems. Through this method, we are able to accurately locate the fault point and provide strong support for the subsequent maintenance work.

3. Solutions

First of all, we use professional battery test tools to make a comprehensive evaluation of the performance and capacity of the battery, in order to deeply understand the voltage status and real-time status of the battery, so as to effectively eliminate the potential problems of the battery. secondly, the multimeter is used to test the plug to verify whether the plug connection is stable, without corrosion or damage, and to ensure that the plug of new energy vehicles is intact. In addition, we will also conduct a careful inspection of the charging lines. once the battery charging line fails, we will use the circuit tester to accurately track the flow of the current, and accurately locate any potential fault point, so as to identify whether the line is disconnected or short circuit.

4. Repair or replace the parts

For the failure or damage of the parts, we will take measures to repair or replace them to ensure the normal operation of the equipment. the repair work will strictly follow the relevant technical specifications and operating standards to ensure that the parts can restore their original function. if the repair is impossible or the repair cost is too high, we will arrange the replacement of the parts in time to ensure the stability and reliability of the equipment. after identifying the cause of the fault, corresponding measures can be taken to repair or replace the faulty parts, including but not limited to cleaning the charge and discharge plug, repairing the line connection, and replacing the damaged battery. after completing the repair work, in order to ensure that the problem is properly solved and the vehicle can be restored to the normal charging function, the vehicle diagnostic instrument is required to be tested again to verify the normality of the system operation. in the whole process, we will uphold a rigorous and prudent attitude, to ensure that every step of the operation complies with the official standards, and to provide customers with efficient and high-quality service.

4.2.1.4.1.3. Fault monitoring

1 .Battery monitoring

As a key component of new energy vehicles, the performance monitoring of batteries is very important. by accurately detecting the key parameters such as battery voltage, power, current and temperature, the normal operation of the battery can be ensured, so as to improve the overall performance and safety of new energy vehicles. To achieve this purpose, we can adopt a variety of advanced monitoring equipment, including but not limited to battery monitor, on-board diagnosis instrument and battery fault diagnosis instrument. these equipment can comprehensively and systematically monitor the indicators of the battery, providing a strong guarantee for the safe operation of new energy vehicles. The main monitoring indicators and methods are detailed in Table 4.3.

Table 4.3. Battery monitoring key points

Health degree	monitoring facilities	Monitoring purpose
temperature current	vehicle	Monitor the battery remaining power and predict the range
	diagnostic apparatus	Monitor the battery charge and discharge status, and judge the battery performance
voltage quantity of electricity monitoring parameter		Monitor the battery remaining power and predict the range
	electric battery	
	Monitor	
Health degree temperature current		Monitor the battery charge and discharge status, and judge the battery performance Monitor the battery temperature change and determine the working state of the battery Monitor the battery charge and discharge status, and judge the battery performance
	electric battery	
	Monitor	

voltage quantity of electricity monitoring parameter		Monitor the battery temperature change and determine the working state of the battery
	electric battery	
	Monitor	
Health degree		Monitor the battery capacity attenuation, and judge the battery service life
	electric battery	
	Monitor	

2. Motor monitoring

As one of the key power components of new energy vehicles, the stability and reliability of motor performance are directly related to the safety and driving efficiency of vehicles. therefore, it is particularly important to conduct accurate and comprehensive monitoring of the motor. through the implementation of effective monitoring measures, we can grasp the key parameters such as the torque, speed, vibration and temperature of the motor in real time, and then judge whether its working state is normal. To achieve this goal, we can use a variety of professional equipment and technical means. among them, the motor monitoring instrument, motor fault diagnosis instrument and on-board diagnosis instrument and other equipment, can play an important role in different scenarios. through accurate data collection and analysis, these devices provide us with in-depth insight into the performance status of the motor, so as to help to find and solve potential problems in time, and ensure the safe, stable and efficient operation of new energy vehicles. the main monitoring indicators and methods are detailed in Table 4.4.

Table 4..4 Key Technical points of motor monitoring

monitoring parameter	monitoring facilities	Monitoring purpose
speed	Vehicle diagnostic instrument	Monitor the motor speed and judge the motor output power

torque temperature vibrate		Monitor the motor output torque and judge the motor performance Monitor the temperature change of the motor and judge the working state of the motor Monitor the motor vibration condition and judge the working condition of the motor
	any power-generating or power-driven machine	
	Monitor	
monitoring parameter speed torque		Monitor the motor speed and judge the motor output power Monitor the motor output torque and judge the motor performance
	any power-generating or power-driven machine	
	Monitor	
temperature		Monitor the temperature change of the motor and judge the working state of the motor
	any power-generating or power-driven machine	
	Monitor	

3 .Control system monitoring

The control system of new energy vehicles covers many core components such as on-board computers, sensors and electronic control units. in order to ensure its safe and stable operation, it is crucial to closely monitor these components, which can effectively grasp the real-time operation status of the control system and find potential faults in time. in order to achieve this purpose, we can use the control system monitoring instrument, on-board diagnosis instrument and fault diagnosis instrument and other professional equipment to implement the monitoring. specific monitoring indicators are shown in Table 4.5.

Table 4. 5 Monitoring key points of the control system

monitoring	monitoring	Monitoring purpose

parameter	facilities	
running state	Vehicle diagnostic instrument	Monitor the operation status of the control system and judge the overall performance of the vehicle
fault code voltage temperature		Monitor and control the system fault code, and determine the fault location and type
	operating system	
	Monitor	
The throttle response monitoring parameter running state		Monitor the battery voltage change and determine the battery status
	operating system	
	Monitor	
fault code Voltage temperature		Monitor the temperature change of battery and motor, and judge the working state of battery and motor
	operating system	
	Monitor	
The throttle response	operating system Monitor	Monitor the throttle response and judge the response speed of the control system

4.Signal detection technology

In the electronic control system of new energy vehicles, many sensors and control modules play a vital role. if any of the sensors or control module fails, it may cause the decline of vehicle performance or even the serious consequences of normal operation. In view of this, the accurate detection of signals from sensors and control modules

has become an indispensable key link to ensure the stable operation of the electronic control system of new energy vehicles.

In the process of signal detection, professional test tools such as oscilloscope are usually used to accurately detect signals. the oscilloscope has the ability to display the shape and waveform of electronic signals, so as to assist the maintenance personnel to understand the signal characteristics, and the corresponding fault diagnosis. during signal detection, attention must be paid to the following aspects: first, the signal object and signal type to be detected must be specified; second, the appropriate detection point position is determined according to the detection object and signal type; then set the parameters of the detection object and signal type, such as the time reference and sampling rate; finally, connect the oscilloscope probe to the detection point and start the oscilloscope for signal detection. during the detection process, the key parameters such as signal frequency, amplitude, waveform and period should be focused on to ensure that the signal is in a normal state.

4.2.2. Cost of core components analysis

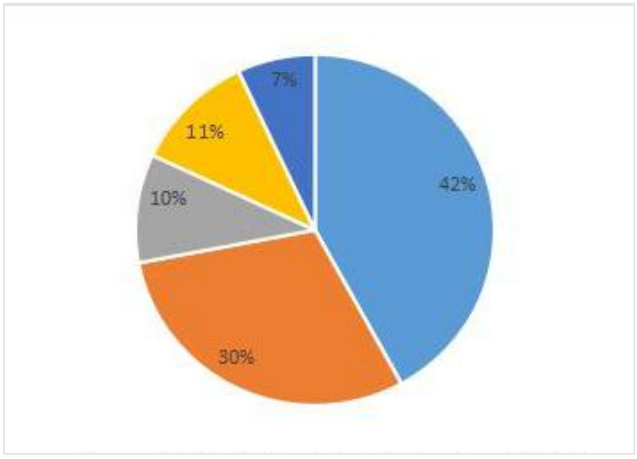
A relatively core link in the new energy vehicle industry chain is the battery business. as the power system of new energy vehicles, the battery plays a vital and decisive role in the maximum driving speed, driving range and the overall safety performance of the vehicle. in addition, as can be seen from Figure 4.1, the battery system has the highest cost ratio, with an average level of 42%. most of the automobile power batteries are mainly lithium battery, and the lithium battery has become the mainstream development direction of the automobile power battery with its excellent performance.

The function of the drive motor of new energy vehicles is to convert electric energy into mechanical energy, which is equivalent to the heart of new energy vehicles. In addition, it can be seen from Figure 4.1 that its cost accounts for 10%.

The electronic control system of new energy vehicles is equivalent to its brain, and its main components include motor drive control system, electric power steering control system and power train control system, etc. the products produced in the

electronic control system have complete functions and good quality.

Figure 4.1 Cost composition diagram of new energy vehicles



Source: China Association of Automobile Manufacturers

4.2.3. Competitor analysis

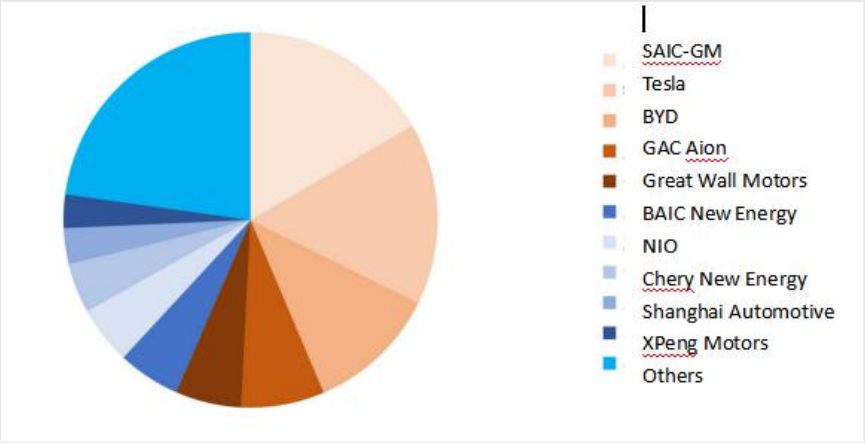
The advantage of automobile manufacturers' after-sales service network is that they have technical advantages and brand premium, and can provide high quality services. the disadvantage is that the after-sales service price is higher, which may affect the consumer choice.

The advantage of the third-party maintenance chain is that it usually has the characteristics of large-scale and professional after-sales maintenance service, and can provide services with relatively low prices. the disadvantage is the relatively low technology and brand awareness, the need to build reputation and reputation to attract consumers.

From the analysis of the types of competitors, the new energy vehicle enterprises in the market can be roughly divided into two categories, namely, the new energy vehicles developed and produced by traditional automobile manufacturers, such as Shanghai-General Motors, Nissan, Toyota and other traditional automobile manufacturers. the other is a brand new car brand like Tesla and BYD. As can be seen from Figure 4.2, there are currently major competitors in China's new energy vehicle market.

Figure 4.2 Competition pattern of pure electric new energy vehicles (2023)

2023 New Energy Vehicle Pure Electric Market Manufacturer Competitive



Source: Passenger Federation foresight Industry Research Institute (2023)

The advantage of online maintenance service providers is that with the development of Internet technology, online maintenance service providers are gradually rising, with the advantages of low cost and high efficiency, attracting some price-sensitive consumers. the disadvantage is that the guarantee of technology and service quality needs to be further improved.

To sum up, the analysis of competitors in the new energy network ride-hailing maintenance service business plan needs to comprehensively consider the market share, service scope and quality, technical strength and innovation, price strategy and cost control, as well as market expansion and marketing strategy. through in-depth analysis of competitors' advantages and disadvantages, it can provide strong support for enterprises to develop effective competitive strategies.

4.2.4. Porter’s Five Forces

4.2.4.1 Bargaining power of suppliers

New energy network ride-hailing maintenance service providers mainly include new energy vehicle parts suppliers, maintenance tools and equipment suppliers, etc. the bargaining power of these suppliers is affected by a variety of factors: if the parts supply market is concentrated and a few suppliers dominate, their bargaining power is

relatively strong. for high-technical parts or maintenance equipment, suppliers have high technical barriers, which may also enhance their bargaining power. if there are multiple suppliers in the market and their competition is fierce, then their bargaining power may be relatively weak. in the field of new energy network ride-hailing and maintenance service, with the continuous development and popularization of new energy vehicle technology, more and more suppliers enter the market, and the market competition gradually intensifies, so the bargaining power of suppliers may be limited to some extent.

4.2.4.2 The bargaining power of the buyer

Buyers mainly include online ride-hailing platforms and consumers. their bargaining power is influenced by: if the market is large and demand is high, buyers may have more bargaining power, as suppliers may offer more incentives to compete for market share. if the maintenance service provider can provide differentiated services (such as quick response, high-quality repair, etc.), then the buyer's bargaining power may be relatively weak. the more price-sensitive consumers are, the more likely they are to choose by comparing the price and quality of different suppliers, thereby increasing their bargaining power. in the field of new energy network ride-hailing and maintenance services, with the intensification of market competition and the trend of service homogenization, the bargaining power of buyers may gradually increase.

4.2.4.3. Threats of new entrants

New entrants may bring in new technologies and resources, increasing market competition. the threat of new entrants mainly depends on the following factors, such as technical threshold, capital requirements, brand awareness, etc. if the industry barriers are high, the threat of new entrants may be relatively small. if demand is strong, new entrants may be easier to gain market share. existing companies may respond to the challenges of new entrants by lowering prices and improving the quality of their services. in the field of new energy network ride-hailing and maintenance services, with the continuous expansion of the new energy vehicle market and the continuous progress of technology, the threat of new entrants may

gradually increase. however, as this field requires certain technical accumulation and service experience, new entrants may need to face high industry barriers.

4.2.4.4. Threats of alternatives

A substitute is another product or service that can meet the same or similar requirements. in the field of new energy network ride-hailing maintenance services, the threat of alternatives may come from the following aspects: although the new energy vehicle market is expanding, the traditional fuel vehicles still occupy a certain market share, so the traditional fuel vehicle maintenance service is still a substitute. as the technology evolves, consumers may be more inclined to solve problems through self-service repair or remote diagnosis, thus reducing their reliance on traditional repair services. however, due to the significant differences between the structure and technical characteristics of new energy vehicles and those of traditional fuel vehicles, the traditional fuel vehicle maintenance service may be difficult to completely replace the new energy network ride-hailing maintenance service. at the same time, self-service maintenance and remote diagnosis also require consumers to have certain technical capabilities and equipment support.

4.2.4.5. In-industry competition

Competition in the industry is the most important aspect of Porter's five-force model. In the field of new energy network ride-hailing maintenance service, the market share and competition pattern of the main maintenance service providers in the market will affect the intensity of competition. maintenance service providers need to attract and retain customers by providing high quality service and reasonable prices. technological innovation and differentiation strategies can help repair service customers of new energy network ride-hailing maintenance service can be mainly divided into the following categories:

Individual car owners: these customers are usually private car owners of new energy networks. they pay attention to the price, speed and quality of maintenance services. for such customers, providing transparent, fast and high-quality maintenance services is key.

Operating vehicle companies: corporate customers of operating vehicles, including online ride-hailing vehicles, taxis and logistics vehicles. these customers usually need to sign long-term maintenance agreements, paying more attention to service stability, long-term cooperation and after-sales support. for such customers, customized maintenance solutions, dedicated account managers, and priority response services can be provided.

Accident car customers: these customers usually need to sign a maintenance agreement with the insurance company, and pay more attention to the convenience of the maintenance process and the cooperation of the insurance company. for such customers, they can establish a cooperative relationship with insurance companies to provide "one-stop" maintenance and claims service.

4.2.5. Customer requirement

Customers generally expect that maintenance services can be performed efficiently and professionally to reduce outage times during vehicle maintenance. customers focus on whether the price of maintenance services is transparent and reasonable, and whether there are additional hidden costs.

The customer hopes that the maintenance service can provide excellent after-sales service, such as regular return visits, warranty policies, etc. customers hope to make convenient appointments for repair services through online channels, and support a variety of payment methods.

4.2.5.1. Characteristics of customer behavior

Consumer survey: i provided effective questionnaire consultation and information collection for 50 new energy owners of the online store in the city area where I live. I also thank customers for their support and help in my survey and information collection. the main survey results are as follows Table4.6

Table4.6 Summary of the overall sample of the customer questionnaire survey:

Questions	Options	Subtotal	Proportion
1.Gender	Female	74	67.89%
	male	35	32.11%
2.Age	Over 50 years old	7	14.00%
	43-50 years old	9	18.00%
	33-43 years old	22	44.00%
	23-33 years old	12	24.00%
	Under 23 years old	0	0%
3.educational background	Bachelor degree or above	37	74%
	junior college	13	26%
4.Current occupation	Online ride-hailing driver（Full-time）	14	28%
	General staff	8	16%
	Manager (part-time)	22	44%
	Freelance (part-time)	6	12%
5. Your annual income			
	100,000 -200,000 yuan	17	34%
	200,000 -350,000 yuan	16	32%
	350,000 -500,000 yuan	11	22%
	500,000 yuan or more	6	12%
6. From what channel to know about our maintenance service	Network wechat, TikTok push	8	16%
	Mobile phone APP online platform	25	50%
	Relatives and friends around you	9	18%
	Others	8	16%
7.Users of pure electric models driving mileage satisfaction	The range is 400 km	26	51%
	The range is 500 km	40	80%
	The range is 600 km	50	100%
8. Purchase of vehicle brand tendency survey	self-owned brand	36	73.00%
	Foreign brands	14	27%
9.the most satisfactory point to you in our maintenance and after-sales process	A.Online booking processing is timely	4	8%
	Professional detection of car problems	6	12%
	The maintenance process is highly efficient and fully transparent	25	50%
	Maintenance cost is more cost-effective	15	30%
10 Budget range for purchasing vehicles	110,000 yuan-180,000 yuan	16	33%
	180,000 yuan-25 0,000 yuan	22	44%
	250,000 yuan-300,000 yuan	10	20%
	300,000 yuan or more	2	4%
11.the main reason for buying new energy passenger vehicles	Travel costs are reduced and the infrastructure is improved	21	42%
	Low-carbon, energy-saving and environmental protection	20	40%
	Intelligent and assisted driving for use	6	12%
	low noise Others	3	6%
12.Cost savings of brand 4S stores	Save by 15%	10	20%
	Save by 20%	25	50%
	Save by 30%	15	30%

-Population positioning. according to the research data, the majority of new energy vehicle users are male, The male to female ratio is 7 vs 3,most people were born in 80s and 90s, accounting for about 67%, private car owners generally have higher education and stable job and income, in business managers or business managers, outgoing optimistic and enjoy life, some people in their spare time also apply for operating license plate, part-time network about car work will have extra life income, full-time about car driver is using car policy dividend and preferential and gradually expand the charging pile coverage infrastructure, compared with the traditional fuel car driver, have a lower travel cost and higher pay.

-The annual income of new energy vehicle private car users is high and the consumption concept is advanced, among which the annual income is 300,000 to 500,000 yuan, accounting for 34%. because of the reduced travel cost of online ride-hailing drivers, the annual income is basically about 180,000 yuan, which also obtains a good income.

-Model positioning, pure electric model users, vehicle range satisfaction of 400 km, 52% of users satisfied,vehicle range of 500 km, and 81% of users satisfied, vehicle range of 600 km, 100% of users satisfied. In the design of electric new energy vehicles, the design of the range should consider the cost and user satisfaction, with the design of 500 kilometers or above. as for the charging time, the most satisfied slow charging time for pure electric vehicle users is 6 hours, and the most satisfied fast charging time is 30 minutes to 1 hour.

-Enterprise awareness and purchase brand tendency survey In the survey of new energy passenger vehicles, most consumers choose new energy according to the cost performance for passenger cars, 73 percent of consumers choose their own brands, and foreign brands accounted for 27 percent.

-Compared with 4S stores, in our maintenance and after-sales process, customers care most about the two core points of efficient and transparent maintenance process and high maintenance cost, which are also our core focus of customer maintenance.

-In the main reasons for consumers to buy new energy passenger vehicles, most consumers value the use of new energy passenger vehicles to reduce the cost of travel, perfect infrastructure and energy conservation and environmental protection,

accounting for 42% and 40% of the survey number, respectively.

-In terms of buying new energy passenger car price range, 33% of consumers choose 110000 yuan-180000 yuan of new energy passenger vehicles, 44% of consumers choose 180000 yuan-25 0000 yuan of new energy passenger vehicles, 20% of consumers choose 250000 yuan-300000 yuan .

-New energy passenger car maintenance service and maintenance cost of the average 2000-2500 yuan, the brand 4S shop cost savings at least 20%, on the maintenance cycle, efficiency and quality to the customer good experience, many customers to the store also has many times a year, there are many old customer members, also hope that long-term high quality service customers.

4.2.5.4. Customer value analysis

High-value customers: usually those with high service quality requirements and strong consumption power. for such customers, VIP services and customized maintenance solutions can be provided to improve their satisfaction and loyalty.

Medium value customers: these customers have certain requirements for service quality, but their consumption power is relatively limited. for such customers, standardized maintenance services, reasonable prices and regular offers can be provided to attract them to continuously choose our services.

4.3. Opportunities And Threats

Opportunities

-At the level of policy support, the government's support policies in the field of new energy vehicles have brought many opportunities for the new energy network car-hailing maintenance service industry.

-the formulation of industry standards and norms also plays an important role in guiding the development of the new energy vehicle maintenance industry.

-In terms of market potential, with the increasing popularity of new energy vehicles and the vigorous development of the online ride-hailing market, the demand for new energy online ride-hailing maintenance services shows a continuous growth trend.

-Intelligence and network are the important development trend of new energy vehicle

maintenance service. with the continuous development of big data, artificial intelligence, the Internet of Things and other technologies, the maintenance services vehicles will be more intelligent.

- Maintenance efficiency and service quality can be improved through technical means such as remote diagnosis and predictive maintenance.
- The network service mode also makes customers more convenient to reserve maintenance service, query maintenance progress, etc.

Threats

-Competition in the new energy vehicle maintenance market is becoming increasingly fierce. With the rapid growth of the ownership of new energy vehicles, the new energy vehicle maintenance industry has attracted many new participants.

-These participants include the after-sales service network built by the automobile manufacturers, the third-party maintenance and service agencies, etc.

-The intensification of market competition makes the maintenance service agencies need to continuously improve the service quality and technical level to win the favor of customers.

-In addition to the traditional 4S stores and maintenance chain stores, some innovative maintenance service enterprises have also emerged, make the market competition even more intense.

4.3.2. Project risk analysis

4.3.2.1. Market competition risk

In the competition of new energy network car-hailing maintenance service industry, maximizing revenue is always the basic motivation and goal of competitors. However, it is worth noting that although the practitioners of the new energy network ride-hailing maintenance service industry are expected to achieve the expected benefit goal, but this goal can not always be achieved. In fact, competition itself is often accompanied by the risk of not able to achieve the expected interests, and may even lead to the loss of economic interests. this deviation between the actual benefit and the expected

benefit goal is caused by the risks inherent in the new energy network ride-hailing maintenance service industry, which stems from the losses or benefits caused by various uncertain factors.

In the fierce competition in the new energy network car-hailing maintenance service market, there are many uncertainties, which make every competitor eager to achieve their expected benefits, but not always successful. the main competitors in the current market include 4S shops, traditional auto parts repair plants and new energy vehicle enterprises self-run after-sales repair plants. especially when there are a large number of repair shops and chain stores in the market, the new entrants will face a more fierce competition environment and price war.

In addition, with the continuous improvement of the technology level and the continuous influx of new enterprises, this project will face more intense market competition and cost pressure in the next few years. the intensification of market competition and the reduction of cost undoubtedly bring greater market risks to this project. therefore, we must maintain a high level of vigilance and rationality to meet the various challenges and risks that may arise.

4.3.2.2. Technical risks

The technical risks of the new energy network vehicle-hailing maintenance service project mainly focus on patent issues and new technology innovation. with the continuous progress of technology, the requirements of professional technology for new energy vehicles are also increasing, which may cover a number of core technologies. in this process, the car manufacturer may build patent barriers, which will have a significant impact on the smooth development of our project. therefore, we must attach great importance to and properly handle these technical risks to ensure the smooth progress of the project.

4.3.2.3. Industrial policy and Institutional risks

Policy risks mainly stem from the relevant laws, regulations and policy guidance issued at the national level. for the new energy network car-hailing maintenance industry, in view of the current stage, it is difficult for the country to comprehensively improve the relevant laws and regulations to standardize the operation of the industry

in a short time. therefore, when the laws and regulations are not yet sound, we should deeply study the legal provisions and policies related to the new energy vehicles and the online ride-hailing industry, so as to reasonably speculate what aspects the government may regulate and regulate in the industry, and then take effective risk response measures to minimize the potential losses.

In addition, the new energy industry, as a green industry strongly supported by the state, and the online ride-hailing industry, as an important livelihood service field, have been highly concerned by the country. especially in recent years, new energy accidents and online ride-hailing problems have occurred frequently. the state has paid more attention to the safety of people's lives and property, and is committed to accelerating the improvement of the relevant regulatory system to promote the healthy and stable development of the industry.

4.3.2.4. Manage risks

The risks faced by the company in the management are mainly concentrated in the key links such as business decisions and project direction adjustment. Once these links occur major strategic mistakes, it may cause the company to suffer serious economic losses. In addition, in the process of operation, if due to insufficient experience, poor management or improper employment and other factors, it may also cause corresponding risks, which will cause adverse effects on the company's operation.

4.3.2.5. Risk of manpower turnover

Personnel changes are unpredictable. once the stability of the team is affected, the phenomenon of personnel loss will inevitably bring significant fluctuations to the smooth implementation of the project. in particular, those employees who master the core technology, as the backbone of the enterprise, their loss will undoubtedly have a profound and serious impact on the overall operation of the enterprise. therefore, enterprises need to attach great importance to the brain drain problem, take effective measures to deal with it, to ensure the stability of the team and the smooth progress of the project.

4.3.2.6. Capital risk

The implementation of the capital investment project needs to go through a long period of time and covers multiple key links. if the management is not good, the investment project may not be completed on schedule, or even some unforeseen factors or specific links, such as the rupture of the capital chain, improper use of funds, will have a negative impact on the implementation planning of the project. Therefore, to ensure the smooth implementation of the project, the investment process must be strictly and standardized managed and monitored.

4.4. Value proposition and project strategy

4.4.1. Mission, Vision and Values

For the new energy network ride-hailing maintenance service business, its mission, vision and values can be summarized as follows:

4.4.1.1. Mission

The mission of new energy network ride-hailing maintenance service business is to promote the popularization of green travel and environmental awareness. by providing convenient, professional and efficient new energy vehicle maintenance services, to ensure that new energy network ride-hailing vehicles always maintain the best performance and service life, and meet the market demand for the maintenance of environmentally friendly vehicles.

4.4.1.2. Vision

The vision of the new energy network ride-hailing maintenance service business is to become a leader in the field of new energy vehicle maintenance service, to provide customers with unparalleled maintenance experience with innovative and professional services, and to promote the healthy development of the whole industry. at the same time, it is committed to building a new energy vehicle maintenance service network with extensive coverage and high-quality service to achieve sustainable development of business.

4.4.1.3. Values

The core values of new energy network ride-hailing maintenance service business focus on quality, reliability and customer satisfaction, which can include the following

aspects: always put maintenance quality in the first place, to ensure that the vehicle performance after maintenance meets or exceeds the original factory standards, and win the trust and reputation of customers. customer-centered, to provide personalized maintenance solutions and quality service experience, to meet customer expectations and needs, improve customer satisfaction.

Provide maintenance services for customers with integrity, transparent way, to establish a good brand image and reputation. Keep up with the development pace of the new energy vehicle industry, and constantly explore new maintenance technology and service mode, in order to adapt to the changes in the market and customer needs. emphasize the spirit of teamwork and sharing, and jointly to provide customers with quality and efficient maintenance services. actively fulfill social responsibilities, promote the popularization and sustainable development of new energy vehicles, and make contributions to environmental protection.

To sum up, the new energy network ride-hailing maintenance service business will adhere to the mission, vision and values, committed to providing customers with high-quality and reliable maintenance services, and promote the healthy development of the whole industry.

4.4.2. Segmentation, Targeting and Positioning

4.4.2.1. Segmentation

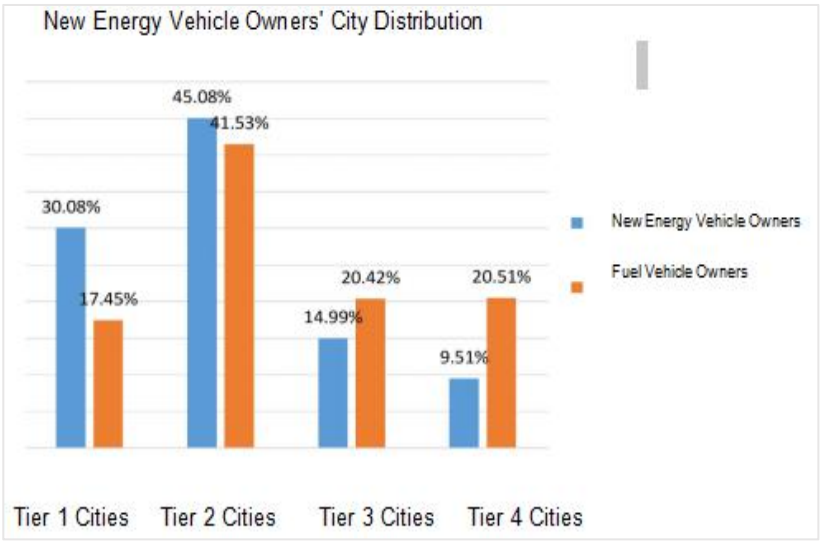
Short-term and medium-term goals: to build a positive brand image among online ride-hailing car owners, and to establish a good reputation, so as to gain wide recognition and trust from car owners.

Long-term goal: to be committed to promoting the "new energy network ride-hailing specialty" brand to the forefront of the market, and strive towards the direction of building a chain brand system, so as to achieve the scale development of the brand and the improvement of market share.

The "three power" technology of new energy vehicles has been basically improved, and the range and battery pack capacity have been gradually enhanced. the number of new energy vehicles continues to rise, and the automobile market is in a stage of

rapid development. the main consumer groups of China's new energy vehicles are concentrated in the first and second tier cities, which are mainly affected by consumption ability, cultural cognition and pre-sale and after-sales convenience.users in second-tier cities are more consistent with the concept of new energy vehicles, and have fuel cars at home, which are less worried about the range, and are more willing to taste new things and easy to accept new things. as can be seen from Figure 4.3, the proportion of new energy owners in the first and second tier cities accounts for more than 70%, and the proportion of high-end fuel vehicles is also close to 60%. However, third-tier and fourth-tier cities are affected by objective factors such as inconvenient maintenance and less infrastructure such as charging piles, so the overall share of new energy is less than one in 4.

Figure 4.3. Urban distribution of new energy car owners



Source: Sohu daily interactive big data count time:(2023)

Due to the vast area of china, the regional economic development is still unbalanced, and the market differences in the eastern and western regions are huge, and the consumption views of the southern and northern markets with different cultural backgrounds are also different. consumers in the north, Shanghai, Guangzhou, deep represented by the first-tier cities and relatively developed southeast coastal areas.

Due to their early contact with automobile culture, their concept of automobile consumption will be relatively mature, and they will have more in-depth views on the brand, history and characteristics of automobiles. at the same time, there are also a large number of potential luxury brand car consumers in the second and third-tier

cities outside the above developed regions. Their average consumption power is not as good as the former, and their consumption concept is not mature enough. The reason for buying cars is to meet the demand for business travel.

Automobile Dimension:

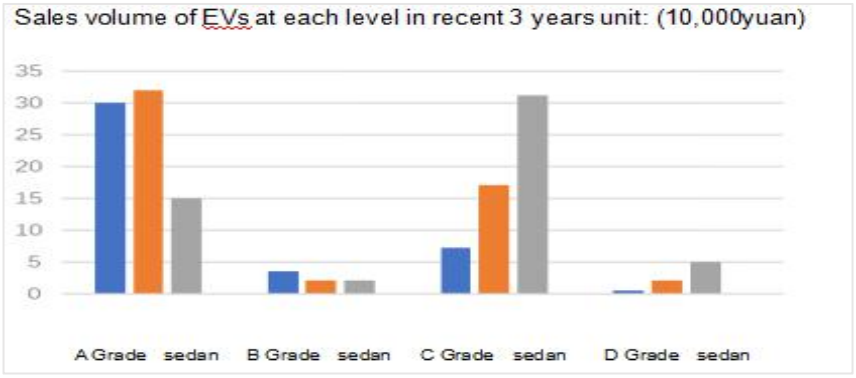
Compact car (A class) wheelbase: 2.5 meters-2.7 meters has the need for long-distance travel, to have more attention to safety and economy.

Medium car (B class) wheelbase: 2.7 meters-2.9 meters strong performance, can achieve more intelligent, biased to the home.

Large car (C-class) wheelbase: 2.8 meters-3 meters of spacious space, which can achieve more intelligent, biased to business.

Luxury car (D class) wheelbase: more than 3 meters to pursue the brand of high-end customers, more is the business demand.

Figure 4.4. Sales volume of EV at all levels in the past three years



Source: China Association of Automobile Manufacturers(2023)

According to the development plan of the Ministry of Industry and Information Technology, it is expected that by 2025, the sales of new energy vehicles will account for 20% of the total sales of vehicles that year, which also means that the sales of pure electric vehicles will reach about 5 million, at the same time, the sales of pure electric vehicles will account for 95% of the total sales of new energy vehicles, that is, it will reach about 4.5 million. as can be seen from Figure 4.4, according to the data of the Passenger Association in the past three years, the total sales and proportion of C-class cars are the first, and B-class cars are in a downward trend, which shows that with the increase of residents' income, consumer demand has changed and turned to

large and more comfortable models. the steady sales of C-class SUV are also enough to justify demand. Based on sales and market share, new energy vehicles can accelerate investment in A-class cars and C-class SUVS. With the liberalization of the two-child policy, more families will move to multi-member families, and the demand for 7-seat D-class cars will also usher in greater demand space.

Therefore, in the market segment, we can understand the proportion of purchasing power demand of new energy vehicles in different cities and the proportion distribution of customers' preferences for different models, so that we can better understand customer intentions and provide clear data support for the future development of our enterprises.

4.4.2.2. Targeting

Online ride-hailing rental companies and independent new energy online ride-hailing owners are the important target customers of the company. for these customers, the company provides a series of comprehensive, high-quality service packages, covering vehicle beauty cleaning and maintenance, charging services, as well as intelligent system maintenance upgrade and battery maintenance and other aspects. the company is committed to meeting the diversified needs of cooperative online ride-hailing companies and car owners with professional and meticulous services, and jointly promoting the steady development of the online ride-hailing industry.

4.4.2.3. Positioning

The positioning of the new energy network ride-hailing maintenance service business can be centered around the following core elements:

4.4.2.3.1. Market positioning

New energy network ride-hailing maintenance service business is mainly for new energy network ride-hailing owners, operating vehicle companies and enterprises and individuals related to new energy vehicles. with the rapid growth of the new energy vehicle market, the demand for new energy network ride-hailing and maintenance services has also increased. this business plan is designed to meet this market

demand and provide convenient, professional and efficient maintenance services.

4.4.2.3.2. Service positioning

The new energy network ride-hailing maintenance service business provides comprehensive maintenance services for new energy vehicles, including but not limited to the detection and maintenance of batteries, motors and electric control systems, as well as the maintenance of charging equipment. it has a professional new energy vehicle maintenance technical team and advanced testing equipment, to ensure the high quality of maintenance services. provide convenient services such as online reservation, door-to-door pickup and delivery to reduce customers' time and energy costs. according to the different needs of customers, to provide a customized maintenance plan and maintenance suggestions.

4.4.2.3.3. Brand positioning

Establish a professional, reliable and efficient brand image, and become a leader in the field of new energy network car-hailing and maintenance services.

4.4.2.3.4. Competitive positioning

New energy network ride-hailing maintenance service business has a professional technical team and advanced maintenance equipment, which can efficiently and accurately solve various faults of new energy vehicles. more service outlets will be established nationwide to improve service coverage and convenience. through quality service and efficient communication, constantly improve customer satisfaction and loyalty.

4.4.3. Marketing-Mix

4.4.3.1. Product

Basic maintenance services provide comprehensive fault diagnosis of new energy network ride-hailing, including but not limited to battery system, motor system, electronic control system and other faults, and provide professional maintenance services. use of advanced testing equipment and professional technical team to ensure the high quality of maintenance service. according to the mileage and usage of the new energy network, we provide customized regular maintenance services,

including battery testing, motor maintenance, brake system inspection, etc. preventive maintenance, prolong the service life of vehicles, improve vehicle performance.

Value-added services to provide customers with technical consulting services for new energy vehicles, and to answer the problems and doubts encountered by customers in the process of use. provide professional technical support and solutions to help customers to better understand and use new energy vehicles. parts replacement and upgrade service provides the replacement and upgrade service of new energy auto parts, including the replacement and upgrade of key components such as battery, motor and electronic control system. use genuine and high-quality accessories to ensure that the vehicle performance after maintenance meets or exceeds the original standard.

4.4.3.2. Price

The price strategy of new energy network ride-hailing maintenance service business should take into account many factors, including service cost, market competition, customer demand, etc. here is a pricing strategy proposal based on these factors: cover the cost of services and add reasonable profit bonuses to ensure the profitability of the business. referring to the price level of similar services in the market, to ensure that the price is competitive, while avoiding the profit compression caused by price wars.

According to customers' payment ability and value perception, we provide different levels of service packages to meet the diversified needs of customers. set different charging standards according to the fault complexity and maintenance time. set a fixed maintenance package price according to the maintenance items and material cost. in the peak maintenance demand, prices can be raised appropriately to cope with rising costs; in the off-season, preferential activities can be introduced to attract customers. according to the price changes of similar services in the market, adjust the price in time to maintain competitiveness. when the service cost changes significantly, such as the price of accessories increases or the labor cost increases, the price can be adjusted accordingly. before providing services, clearly inform

customers of the price of various services to avoid unnecessary disputes. for customers' questions about the price, provide detailed explanation and explanation to enhance customer trust and satisfaction.

To sum up, the pricing strategy of the new energy network ride-hailing maintenance service business should take into account multiple factors to ensure that the price is reasonable, transparent and competitive. at the same time, according to the market changes and customer needs for timely adjustment, in order to maintain the sustainable development and profitability of the business.

4.4.3.3. Place

1.Promotion of cooperative alliance

Establish a solid cooperative relationship with major automobile manufacturers and dealers, and work together to promote quality maintenance service projects.

2 .Store publicity materials

Carefully planned and designed, made a series of publicity materials, including but not limited to posters, leaflets and color pages. these promotional materials will be properly hung in a prominent position in the store, or directly distributed to customers, aiming to effectively guide customers to deeply understand the maintenance projects and various preferential policies we provide, so as to further enhance customers' awareness and satisfaction with our service.

3. Word of mouth communication

By continuing to provide high quality maintenance services and excellent customer experience, we are committed to stimulating the word of mouth momentum. to this end, we have specially set up a recommendation award program, which aims to further expand our customer base and achieve steady growth of our business by encouraging existing customers to actively recommend new customers.

4.Local media publicity

In close cooperation with local newspapers, radio and television stations and other mainstream media, through the release of advertisements or related reports of maintenance service projects, it aims to widely spread the brand image, improve the

visibility and influence of maintenance services.

4.4.3.4. Promotion

1.Social media marketing

In order to effectively promote the brand and enhance the interaction with potential customers, we have successfully established brand accounts on mainstream social media platforms, such as Weibo, Xiaohongshu, TikTok, etc. by regularly publishing professional maintenance skills, practical case sharing, and attractive promotions, we actively maintain close interaction and communication with potential customers. in addition, we also make full use of Wechat public account, video account, TikTok enterprise account and other channels, in order to obtain more traffic, to achieve the purpose of brand promotion, and then enhance the brand awareness and influence.

2.Online advertising

With the help of search engine advertising and social media advertising and other means, effectively implement online advertising strategy, precise target audience, and then significantly enhance the market exposure of the brand, and effectively improve the click-through rate of advertising.

3.Network cooperation

In order to improve the website traffic and user conversion rate, we can actively establish stable cooperative relations with automobile related websites, forums, communities, etc., realize resource sharing and interconnection, and jointly promote user interaction and business growth.

4.Online customer service

To provide customers with high-quality online customer service and consulting services, to ensure that customers can timely and accurately answer all kinds of questions, so as to continuously optimize customer experience, improve customer satisfaction.

4.5. Economic and financial feasibility analysis

4.5.1. Financing plan

The planned total investment amount of the new energy network vehicle-hailing maintenance service project is RMB 2.6 million yuan. among them, the investment in fixed assets is RMB 1.04 million, accounting for 40% of the total investment, mainly used for purchasing long-term assets such as necessary maintenance equipment, tools and site renovation; the amount of working capital investment is RMB 520,000, accounting for 20% of the total investment, which will be used to guarantee the normal operation and daily operation of automobile maintenance project.

The fund allocation plan is designed to ensure that the funds needed for the new energy network vehicle-hailing maintenance service project are scientifically and reasonably arranged and applied. through the rational allocation of fixed asset investment and working capital, it not only meets the needs of the long-term development of the project, but also ensures the flexibility of daily operation. this move will help promote the smooth progress of the new energy network ride-hailing maintenance service project, and achieve stable and sustainable operation and development.

4.5.2. Sources of funds and capital structure

At present, the new energy network vehicle-hailing maintenance service project completely depends on the enterprise's own funds for operation, and all the investment and capital needs involved in the project must be borne by the enterprise itself. in terms of financing, enterprises may need to meet the funding needs of new energy online ride-hailing maintenance service projects through internal capital allocation, debt financing or exploring other financing channels. this self-raised capital mode puts forward high requirements for the financial planning and risk management ability of the enterprise, aiming to ensure the smooth progress of the new energy network vehicle-hailing maintenance service project, and avoid the potential adverse impact on the normal operation of the enterprise.

As shown in Table 4.7, the annual budget table is prepared for new energy vehicle

maintenance startups based on the basic financial information of the company. The budget table includes key financial indicators such as revenue, cost, taxes and profit, and is divided into five-year forecast.

Table 4.7 Annual Budget Form (Unit: ten thousand yuan)

project	Year 1	Year 2	Year 3	Year 4	Year 5	remark
1. Income						
Annual operating income	200	200	200	200	200	Annual sales revenue is expected to be stable
2. Cost						
Cost of production	50	50	50	50	50	Including equipment depreciation, material costs, etc
Administration cost	30	30	30	30	30	Including labor, office costs, etc
Total cost	80	80	80	80	80	
3. Taxes and surcharges	30	30	30	30	30	Taxes and fees paid according to the regulations
4. Total profits	90	90	90	90	90	Revenue-total cost-taxes
5. Initial investment						
Investment in the fixed assets	104	0	0	0	0	In the first year
Investment in working capital	52	0	0	0	0	In the first year
Other investments	104	0	0	0	0	In the first year
Total investment	260					
6. Net cash flow						
net cash flow	-170	90	90	90	90	Total profit-Initial investment (Year 1)
7. Accumulated net cash flow	-170	-80	10	100	190	

Hypothesis and instructions

1. Stable income: Assuming that the annual sales revenue is 2 million yuan, no significant increase or decline.
2. Stable taxes and fees: taxes and additional fees are 300,000 yuan per year.
3. Initial investment: All initial investments (RMB 2.6 million) will be completed in the first year, including fixed asset investment, working capital investment and other investments.
4. Net profit margin: the annual profit is stable, about 900,000 yuan, and the net profit margin is 45% (net profit / annual income = 90 / 200).
5. Cash flow: Net cash flow was positive from the third year and negative from the first year (due to the initial investment).

The calculated net present value (NPV) assumes a discount rate of 10%:

-Initial investment C0 = -2.6 million (year 0).

-Net cash flow for the next 5 years Ct = 900,000 yuan (t = 1,2,3,4,5).

-Discounting rate, r = 10%.

NPV = -260 + 81.82 + 74.38 + 67.62 + 61.47 + 55.88

NPV= 811,700yuan

The NPV> 0 project is feasible and can create value for investors.

The payback period is the time required for the accumulated net cash flow equal to the initial investment. accumulative total of net cash flow:

Year 1: -260 + 90 = -170

Year 2: -170 + 90 = -80

Year 3: -80 + 90 = 10

Investment payback period = 2 years + (80 / 90) = 2.89 years

Table 4.8 Rate of return for a fixed IRR value（Unit: ten thousand yuan）

project	Initial investment	Year1	Year2	Year3	Yea4	Year5
IRR = 21.55% present value	260.00	74.04	60.91	50.11	41.23	33.92

The internal rate of return (IRR) calculation is the discount rate with zero NPV, which is solved by the trial algorithm.

When the discount rate is 21.55%:

NPV = 74.04 + 60.91 + 50.11 + 41.23 + 33.92-260 = 0.21ten thousand yuan

Since NPV is close to 0, it can be considered that IRR 21.55%.

IRR = 22%, 10% higher than the discount rate, and the project is feasible.

4.5.3. Financial forecasting

1. It is expected to reach the annual operating revenue after full production: after the full realization of the new energy network vehicle hailing maintenance service project, the total annual total sales revenue is expected to reach 2 million yuan.

2. Total cost overview: the total operating cost and cost of the new energy network ride-hailing maintenance service project in the production year is RMB 800,000 yuan, covering the production cost, management cost and other expenses.

3. Tax and additional expenses: the new energy online car-hailing maintenance service project shall pay taxes and additional related fees according to the regulations in the year of production, totaling RMB 300,000 yuan.

4. Total profit forecast: after comprehensive consideration of costs, taxes and other expenses, the total profit of the new energy net vehicle-hailing maintenance service project is expected to achieve RMB 900,000 yuan in the year of production.

5. Estimation of all investment payback period: it is expected to take about 2.9 years to realize the full investment recovery from the start of the investment.

5. Conclusion

This thesis aims to conduct a comprehensive and in-depth analysis of the new energy network vehicle maintenance service project, with rigorous attitude and scientific method, and evaluate the construction investment of the project from the multiple dimensions of input cost, project profit and market environment analysis. From the perspective of national development strategy, the new energy network vehicle-hailing maintenance service project is closely in line with the national policy guidance and has important strategic value. after in-depth market research and data analysis, we clearly observe that with the rapid expansion of the new energy online ride-hailing market, the demand for related repair and maintenance services is showing a continuous growth trend. this market trend not only provides a broad market space for maintenance projects, but also provides a rare development opportunity for its sustainable development. on the basis of fully grasping the market opportunities, giving full play to the competitive advantages and formulating feasible marketing strategies, the project can achieve stable operating results, and successfully build a high-quality brand image and reputation.

To sum up, the construction of this project not only meets the needs of people's livelihood and conforms to the national policy guidance, but also can effectively promote the healthy development of related industries. therefore, after rigorous and meticulous feasibility analysis, the new energy network ride-hailing maintenance service project is feasible and has important practical significance.

Research limitations

Because of time and preparation, in the theory of research and sample collection preparation and a lot of research shortcomings, given the improvement and implementation plan has certain limitations, the actual variables of many markets are not fully considered, but still want to reflect the actual market situation as much as possible.

Future research ideas

Future learning and research should be a continuous process, and by constantly putting forward higher requirements in the future industry research, the research direction of the future new energy vehicle online ride-hailing maintenance plan includes the following aspects:

- Intelligent maintenance system and AI diagnosis, make full use of artificial intelligence and big data analysis, predict potential faults, and provide maintenance suggestions.
- Develop more accurate battery health status monitoring technology to extend battery life.
- Design systematic training courses for new energy vehicle technology to improve the skills of maintenance personnel.
- Establish a maintenance data management platform, record and analyze the maintenance data, and optimize the maintenance process.
- Promote the data sharing mechanism to improve the overall maintenance efficiency.
- Provides a transparent maintenance process and cost information system to enhance user trust.
- Optimize the layout of maintenance points and improve the service coverage.

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Appendices

Appendix - Questionnaire

Q1: What is your gender?

A. Male

B. Female

Q2: What is your age group?

A. Under 23 years old

B. 23-33

C. 33-43

D. 43-50

E. Over 50 years old

Q3:What is your education level?

A. Bachelor degree or above

B. Junior college

Q4: What is your current occupation?

A. Online ride-hailing driver （Full-time ）

B. General staff

C. Manager (part-time)

D. Freelance (part-time)

Q5: Your annual income range?

A. 100,000 -200,000 yuan

B. 200,000 -350,000 yuan

C. 350,000 -500,000 yuan

D. 500,000 yuan or more

Q6. From what channel to know about our maintenance service?

A. Network wechat, TikTok push

B. Mobile phone APP online platform

C. Relatives and friends around you

D. Others

Q7.Users of pure electric models, driving mileage satisfaction range?

A. The range is 400 km

B.The range is 500 km

C.The range is 600 km

Q8.Purchase of vehicle brand tendency survey

A. Self-owned brand

B. Foreign brands

Q9.Compared with the 4S shop in the garage, what is the most satisfactory point to you in our maintenance and after-sales process?

A. Online booking processing is timely

B. Professional detection of car problems

C. The maintenance process is highly efficient and fully transparent

D. Maintenance cost is more cost-effective

Q10. Budget range for purchasing vehicles?

A. 110,000 yuan-180,000 yuan

B. 180,000 yuan-25 0,000 yuan

C. 250,000 yuan-300,000 yuan

D. 300,000 yuan or more

Q11.Compared with traditional fuel vehicles, what is the main reason for buying new energy passenger vehicles?

A. Travel costs are reduced and the infrastructure is improved

B. Low-carbon, energy-saving and environmental protection

C. Intelligent and assisted driving for use

D. low noise Others

Q12. Our store maintenance cost with the brand 4S store is relatively cheap range?

A. Save by 15%

B. Save by 20%

C. Save by 30%

Q13. Every time you come to the store to repair the cost of new energy vehicles and repair time cycle ( )

Thank you for your valuable advice.