

The Development and Current State of New Energy Vehicles: A Case Study of Xiaomi Brand

Lingyu Sun^{1,a,*}

¹Harbin No.9 Middle School, Heilongjiang Province, 150028, China
a. 13351209666@163.com

**corresponding author*

Abstract: With the promotion of sustainable development, the strong support of the government and the enhancement of people's environmental awareness, new energy vehicles have gradually entered the public's vision and successfully opened a new energy market. At the beginning, only a small number of people in the research and development of new energy vehicles, slowly more and more companies see that this industry is profitable, and the future trend of the industry is toward brilliance, so more and more companies enter the market. Marketing means must be an important factor in whether a company can occupy a large market share and successfully enter the mass unemployment, after all, only profitable companies can continue to develop new technologies and continue to go on in this industry. Based on PEST and SWOT models, this paper analyzes the representative Xiaomi trams in the industry. The analysis results show that Xiaomi has successfully attracted more young people who need to buy cars and achieved a certain sales volume by seizing the consumer psychology, reasonably using the Internet for marketing and other means, and making some differences and innovations in price and function. This paper will provide strategic reference for the management of small and medium-sized enterprises.

Keywords: New energy automobile industry, Xiaomi Su7, development status, SWOT analysis, PEST model.

1. Introduction

With the rise of the new energy vehicle market, new energy vehicles have gradually become a new generation of young people are more willing to choose a means of transportation. Due to the progress of tram technology and the rapid expansion of the industry, the data of tram have been well integrated and released, which also provides reliable data and information for us to study the development of the tram industry. The audience and evaluation of trams are also different. Most of the audience is young people, who are used to using fuel cars can not adapt to the operation of trams in a short time. Comments are also polarized, some think that the experience of use is very good, trams can replace oil cars, but some people think that in many ways trams are not as good as fuel cars. Because of the epidemic in previous years, the global economy was sluggish, which also led to relatively few data for those three years.

This paper mainly studies the development and current situation of the new energy automobile industry, and analyzes the development process of the new energy automobile industry and the macro external conditions of the current tram market by reviewing the facts and PEST model. In addition,

this paper also chooses millet tram as a specific case, and analyzes the status quo of this brand tram through SWOT model, including its advantages and disadvantages, opportunities and challenges faced in China's tram market. The purpose of the study is to add a more in-depth analysis of the new energy vehicle industry and its development trend, and provide references for other small and medium-sized enterprises.

2. An Overview of Development and Current Situation of New Energy Vehicles

As global environmental awareness has increased, an increasing number of people are focusing on minimizing exhaust emissions and safeguarding the environment, making the choice of new energy vehicles an eco-friendly consumption option. However, because the technology of new energy vehicles is not widespread and mature, the price is relatively high, and consumers are not used to the operation mode of trams, so the use of trams is not enough and the demand is little.

Since 2014, China has implemented policies to promote the adoption of new energy. The General Office of the State Council released the Guiding Opinions on Expediting the Promotion and Utilization of New Energy Vehicles [1]. The policy encompasses various aspects, including expediting the development of charging infrastructure, actively encouraging companies to innovate their business models, and enhancing technological innovation and product quality oversight to facilitate the promotion and use of new energy vehicles. And some parts of China offer benefits for buying trams, such as reduced taxes and free license plates.

With the continuous innovation and progress of new energy vehicle technology, the improvement of battery technology has extended the driving range and shortened the charging time, which has improved the acceptance of new energy vehicles by consumers. The improvement of technology has also reduced the cost of new energy vehicles, and the market retail price has also decreased, which will also attract customers to buy new energy vehicles. Compared with fuel cars, the instability of oil prices and very low electricity bills, saving money on gas is more attractive to people to buy trams. So demand for trams is rising again.

3. Analysis of the Current Status of New Energy Vehicles

3.1. Introduction to PEST Analysis Model

American scholars Kevan Scholes and Gerry Johnson created the PEST model in 1999. The four letters stand for the elements of politics, economy, society, and technology, which are frequently used to assess outside effects on a market. The PEST model is also a useful tool for understanding the market, a company's position, its business plan, and future prospects [2].

3.2. Application in Understanding New Energy Vehicles Industry

The following section will use the model to assess the external environment faced by the NEV market.

3.2.1. Political Factors

On the political front, the tram industry enjoys strong support from governments around the world, which is seen as key to environmental protection, climate change mitigation and promoting sustainable development. Therefore, new energy vehicles should not be regarded as a good product to reduce carbon emissions and achieve the effect of protecting the environment.

In China, to encourage the adoption of new energy vehicles, the General Office of the State Council released the Guiding Opinions on Speeding Up the Promotion and Utilization of New Energy Vehicles [1], the document is as follows: Specific measures were put forward to accelerate charging facilities construction, actively guide companies to innovate business models, promote public

services' promotions and applications, further improve the policy system, resolutely break local protection, strengthen technological innovation and product quality supervision, and further strengthen organizational leadership to promote the promotion and application of new energy vehicles. Driven by the "double carbon" goal, the production and sales of new energy vehicles are booming, with the annual sales volume in 2023 reaching 9.443 million and 9.495 million, respectively, an increase of 30.81% and 37.9% year-on-year, ranking first in the world for nine consecutive years, accounting for more than 60% of the global share [3].

Regional governments in China have also issued different policies on trams, such as reducing tram taxes and subsidies. And accelerate the construction of more charging piles in different parts of different regions, while adjusting fuel prices, which pave the way for the future expansion of the tram industry and create favorable conditions.

3.2.2. Economic Factors

With the end of the epidemic, the global economy is recovering, and the economic conditions of all industries are developing positively, and the new energy automobile industry is no exception. With the increasing recognition of trams, the tram market is gradually expanding.

For China, due to the advanced technology, such as short charging time, long battery life, and more modern and intelligent functions inside the car, the number of trams sold in China and the export volume are on the rise. The distribution of the tram industry in China is generally uniform, except for areas with very cold weather, such as northeast China, because in winter, the performance of the car can not be very good, which will affect the recognition and sales of the tram brand. For different people, among the many car brands, the price of the tram is different from that of the fuel car, there is no need to buy a good brand in the tram, the function will not be much different, and the price of new energy vehicles will be more friendly to the people. And in the later investment, the cost of new energy vehicles is far less than the fuel vehicle, the price of a tram to run a kilometer is about 1 cent yuan, while the oil vehicle is about 50 cents, about 5 times the difference.

Figure 1 shows the sales volume of new energy vehicles in China from 2021 to 2023 and the percentage change in the number sold each year. It is obvious that the sales volume of new energy vehicles increases significantly in the year of the Pig, from almost zero in 2012 to nearly 400 in 2023. It can be seen that the most annual sales are in 2022, which can be attributed to the promotion of new energy vehicles in recent years, and the price is more favorable than that of fuel vehicles, or it is more cost-effective.

The percentage change was the most prominent in 2014, reaching 300% of the previous year. This is because the country issued the first policy on new energy vehicles and proposed car purchase subsidies for the first time in 2014, which greatly increased consumer confidence and purchasing power, making a large part of people choose to buy new energy vehicles.

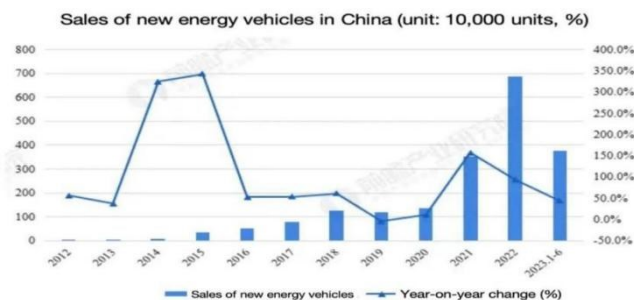


Figure 1: Sales of new energy vehicles in China [4].

3.2.3. Social Factors

In China, the usage of trams is higher in the south and lower in the north. Due to climatic factors, trams used in the north in winter will have a great impact on the cars, such as battery leakage or short life. But even so, the future trend of the tram market is still an upward trend, and may even replace the tram one day.

In addition, people pay more and more attention to health issues, the exhaust gas emitted by fuel vehicles contains many chemicals, which not only harm human health but also aggravate global climate and other problems, so people are more serious and anxious about finding and using clean energy, hoping to slow down the development of the world climate problem one day earlier. The rapid development of new energy vehicles and the installation of charging piles in the streets of many different urban areas make trams more practical, and also reduce people's anxiety about buying trams, such as worrying about nowhere to charge.

In recent years, China has seen the rise of many tram brands: Nio, Ideal, Xiaopeng, Lead, Tesla, etc. There are also a number of car brands offering hybrid models.

3.2.4. Technological Factors

Global new energy vehicle development has reached an unstoppable fast lane, with electrification or new energy driving future global automotive growth. The functions of the tram are also very attractive, and the various configurations inside the tram are very complete and advanced, such as intelligent voice control, 360 degree rotation of the rear seats, a large TV, and the driving screen is an ultra-long high-definition electronic screen. Maximum comfort and enjoyment can be achieved. The driver will not feel particularly tired when driving, because the foot of the new energy vehicle is very good, and it will run far if it gently steps on the accelerator. This means that the overall feeling when driving is very light, there will be no car is very heavy, driving can not move the feeling of the road. It. But the technology of different countries is different, and the trolley technology of other countries is also well developed. For example, in terms of range, the Semi can travel 500 miles at highway speeds, and in general, 80% of cargo is transported within 250 miles. In addition, Semi's excellent aerodynamic design also minimizes air resistance [5]. It will greatly shorten the charging time of the tram and increase the efficiency of the tram.

China's new energy industry has been growing and making progress in technology. In 2025, China's installed battery capacity will reach 600GWh. A high version of millet car, 800V high voltage platform to build, equipped with Ningde era Kirin battery, is expected to achieve 15 minutes to charge 80%. Intelligent driving is equipped with Nvidia Orin X chip, equipped with Lidar, and the algorithm is self-developed by Xiaomi [6].

In the next five years or so, the village will become the highest point of the tram market and become the peak point of sales. The upstream sector of the new energy vehicle industry, as seen from the perspective of the industry chain, is mainly responsible for the supply of necessary raw materials and components such as batteries, motors, and electronic controls. The manufacturing of new energy vehicles, which are divided into passenger cars, commercial vehicles, etc., is the midstream aspect. Application domains including new energy vehicle aftermarket services and charging services are included in the downstream [4]. In general, power battery is the most core and most valuable key component of new energy vehicles, and the choice of power battery procurement channels is an important strategy for new energy vehicle enterprises [7]. At present, the progress of technology makes new energy vehicles basically have the economic advantage of competing with fuel vehicles of the same grade.

4. Analysis of Xiaomi New Energy Vehicles

4.1. Introduction to SWOT Analysis

A corporate company can assess its internal and external elements by using the SWOT analysis, which stands for Strengths, Weaknesses, Opportunities, and Threats [8].

4.2. Application in Analyzing Xiaomi New Energy Vehicles

On March 28, 2024, Xiaomi's first car, the Mi SU7, was officially launched. Within 24 hours, the large order was close to 90,000 units, which is a miracle in the Chinese automotive field. After establishing itself in 2010, Xiaomi formally launched their first smartphone in 2011, to a favourable welcome. Additionally, they acquired their first clients for their brand. In August 2013, Xiaomi completed a new round of financing and its brand valuation reached 10 billion US dollars, becoming the fourth largest Internet company in China [9].

In the following sections, this paper will use the SWOT model for assessment.

4.2.1. Strengths and Weaknesses

As a well-known technology company, Xiaomi has a high brand awareness, and has a very light brand influence and loyal user groups. As long as Xiaomi has a new product on the market, there will be some people interested in or to buy it. In terms of technological innovation, Xiaomi has advanced technology and innovation capabilities in the field of intelligent science and technology. Xiaomi has the world's largest consumer intelligent hardware IoT platform [10].

According to Lei Jun's memories, at that time, Millet's first move was to decide that the next five years of research and development investment should exceed 100 billion yuan, and in the field of investment, it is necessary to adhere to the technology track that has long-term value for human civilization. More than 700 robots have been used in the Xiaomi Auto factory, all key processes have achieved 100% automated production, and quality inspection has achieved 100% online automatic detection. At full capacity, the factory can produce 40 Mi Su7s per hour, and a new car can roll off the assembly line every 76 seconds [3].

At the same time, Xiaomi also attaches great importance to product design and user experience. In addition to the characteristics of trams, Xiaomi cars have added functions that people really need - sun protection. The glass of this car has a sun protection function, no matter from any Angle, as long as it is in the car will not be sunburned, especially for women, the skin will not become black.

Xiaomi Auto also has channel advantages. Whether it is retail or online sales, Xiaomi has rich experience and high-quality users. Strong sales channels can make Xiaomi Auto have some stable consumers.

For Xiaomi, a new market entrant in the automotive field, in addition to the competition between trams and fuel cars, it will also have strong competition with car companies in the same category. Professional tram brands have entered the market for many years, and they have a lot of data that can be analyzed to judge customer needs and future industry trends. In the face of experienced companies of the same category, Xiaomi car lacks user experience feedback and modification suggestions.

Xiaomi car also has great shortcomings in charging infrastructure equipment, because the product has been on the market for a short time, so the corresponding charging equipment can not be seen everywhere, and there are certain hidden dangers for users of Xiaomi car, such as not being able to find the nearby charging pile when there is no electricity.

4.2.2. Opportunities and Threats

With the increasing demand for clean energy and sustainable mobility, the new energy market is gradually expanding, and the demand for new energy vehicles is even increasing. Moreover, the policies implemented by the government also support and encourage the development of new energy vehicles, and subsidies and other welfare benefits can attract consumers to buy new energy vehicles. In the future, more and more products will tend to automation, with the development of intelligent technology, technological progress and maturity, people will be more and more favored for the use of new energy vehicles.

In the face of many new energy vehicle companies entering the market, for example, the pioneer of the tram industry has been in the market: Tesla. There are also Hyundai, Kia, and the sale of traditional fuel cars, Millet car is facing increasing pressure, and even some traditional fuel car companies are trying to produce electric cars of the same brand. At the same time, Xiaomi Automobile is also facing huge technical risks, with the progress of The Times, the development of science and technology, the speed of technological upgrading of the trolley industry is particularly fast, and if you want to keep ahead, you need to constantly invest in research and development to maintain competitiveness. Because the materials of Xiaomi cars are advanced and high-end, it is necessary to ensure that the supply chain of raw materials does not cause problems, so as to not affect the production and delivery of Xiaomi cars.

Relying on its advantages in intelligent hardware and Internet technology, Xiaomi is committed to building intelligent electric vehicles. The technical support in software and hardware also helps to improve the intelligence of the product itself and the experience it brings to customers, and it also has great advantages in terms of market potential. The Chinese market is large, and there are more young people pursuing quality life. The good brand influence will also support the better development of Xiaomi's new energy vehicles.

5. Conclusion

This paper describes the development process of new energy vehicles, but describes more about the new energy vehicle market in its heyday in recent years, because of the support of national policies and the promotion of sustainable development, the competition in the new energy vehicle market is very intense.

This paper does not use too much information and data, but only uses words to analyze and summarize the current market situation of the new energy vehicle industry. Most of the information used is from news or official public accounts, and a small amount of second-hand information may not be accurate enough. Besides, it only studies the situation of the new energy vehicle market in China, and provides little research content for other economies. For the future research direction, pay more attention to and appropriately increase the charging infrastructure, because only when people have no concerns, they will have a better driving experience and be bolder to buy a car. Safety risks should also be paid more attention to, battery safety and vehicle stability is still a big problem and still need to be paid attention to, consumer concerns about safety will also affect purchasing power.

Finally, the PEST and SWOT models also draw a conclusion that the global new energy vehicles are improving the use efficiency of products, most of which focus on the battery life and charging time. The development of the entire new energy vehicle industry is also very rapid and the future development trend is also very good. This article provides some references for small and medium-sized enterprises in China's tram industry, which can be referred to as Xiaomi Automobile, by adopting cost-effective price, novel design and Internet traffic to increase the sales volume of their products, so as to achieve higher profits.

References

- [1] Chinese Government portal (2014). Issued by The General Office of the State Council. Guiding Opinions on Accelerating the Promotion and Application of New Energy Vehicles. https://www.gov.cn/xinwen/2014-07/21/content_2720944.htm
- [2] Will Kenton. (2024) What Is PEST Analysis? Its Applications and Uses in Business. February 27. Investopedia.
- [3] Yang YH. (2024) New energy vehicles from manufacturing to intelligent manufacturing. Beijing Business Today. April 27.
- [4] Prospective Industry Research Institute. (2024) Forecast 2024: Panorama of China's new energy vehicle industry in 2024 (With market status, competition pattern and development trend, etc.). www.qianzhan.com.
- [5] Yu L. (2017) Tesla unveils electric truck Tesla Semi: 100 km/h acceleration in 5 seconds, "Unlimited" brake life. [J] East China Science and Technology, 12:12-13.
- [6] Wang L. (2023) The appearance of the first phase of the plant is basically formed. National Business Daily. Jan 12. DOI:10.28571/n.cnki.nmrjj.2023.000120
- [7] Zou B.L., Chen L.H., Liang Q., Zhou S.R. (2024) Centralization or separation: A study on the influence of vehicle-electric operation strategy on the selection of rival battery suppliers. Chinese management science. pp.1-17.
- [8] Will Kenton. SWOT Analysis: How to with table and example, Aug 10, (2022). <https://www.investopedia.com/terms/s/swot.asp>.
- [9] Jixin Lin. (2023) Analysis of the Current Development of Air Purifiers--Taking Xiaomi Air Purifier as an Example. ICEMCI 2022, AEBMR 668, pp. 1599–1606. https://doi.org/10.2991/978-94-6463-098-5_180.
- [10] Fan Y.N., Liu H. (2024) Research on marketing innovation of smart home industry in the era of Internet of Everything -- take Xiaomi Company as an example. Northern Economy and Trade., 06:120-124.