

Analysis of competitive strategy of electric vehicles under the new situation—take NIO Company as example

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Abstract: This paper comprehensively and systematically analyzes the strategic environment of NIO Company—the first Chinese electric vehicle company listed in the United States. And it provides some strategies by using the SWOT methodology that contains the analysis of strengths and weaknesses and the opportunities and threats from the electric vehicle industry under the background of the Chinese government's vigorous promotion of electric vehicles. According to the analysis of the internal strengths and weaknesses of NIO Company, this paper concludes that NIO Company has a competitive sale approach that customers could experience the purchase process directly. Although NIO is a high-end electric vehicle company in this industry, its battery life technology still requires a lot of investment in research and development compared to the core technologies from companies in Japan and the United States. From the analysis of external factors, this paper concludes that after nearly 20 years of preferential policies and dynamic promotion by the Chinese government, the supply chain of the electric vehicle industry is complete. Thus, NIO Company is in a period of robust development in the industry, but this phenomenon also means that NIO Company has many strong competitors. Therefore, this paper combines these internal and external factors to provide NIO Company with several strategies. First of all, NIO commercial department could attract public attention to advertise NIO Company as the first company listed in the United States. Secondly, NIO Company should identify the target customer group as young people who prefer cars with beautiful appearance and as people who live in a metropolis that has broad infrastructures of electric vehicles. Finally, NIO Company needs to make good use of the advantages of the measures which provide electric vehicle enterprises with technical funding to increase investment in technology research and development and master the core technology as soon as possible.

1. Introduction

Since the 21st century, global warming, air pollution, and other environmental problems have become more and more obvious, of which the emissions from automobiles are one main reason. To be sustainable use of non-renewable resources like oil, electric vehicles have a good opportunity for development. The last two decades have seen a growing trend towards electric vehicles. The government has promulgated a series of policies, including financial subsidies, research and development subsidies, consumer purchase subsidies, and so on, to maintain the sustainable development of electric vehicles. According to “Made in China 2025”, China's annual sales of new energy vehicles are expected to account for 20% of the total demand in the automotive market in 2025, with a market share reaching more than 80%. However, the rapid development of the electric automobile industry also causes a series of problems at the same time, such as the lack of professional core technology. The efficiency of enterprises for research and development is still not high, and some enterprises need to rely on government subsidies to maintain a regular operation. With the rapid

development of social information technology, the automobile industry should not be limited to meeting basic driving needs, and gradually pay attention to the research and development of safety, entertainment, and other performance. This means that automobiles will gradually shift from vehicles to mobile terminals, and the automotive industry will be more intelligent and incline the direction of electric development. At present, the traditional automobile industry cannot meet the needs of the current society's development, while the Internet enterprises have more advantages in the users' experience and vehicle ownership model. Internet technology has become the main driving force behind the development and innovation of the automobile industry. The world's automotive industry has also launched cooperation and fierce competition. With the transformation and development of the traditional automobile industry and some foreign-owned enterprises, a large number of electric automobile enterprises enter the market.

The unprecedented development of the electric vehicle industry has attracted a lot of investment. Many scholars began to study the management of electric vehicle companies from different aspects. Based on an inter-company case and from a supply chain perspective, collecting data via tours of manufacturing plants, workshops, and interviews from multiple tiers in a supply chain and finding a more relational approach that is important in an inter-company relationship in the electric vehicle industry [1]. To better understand what the customer thinks, scholars examine the factors that affect the buyer's intention of electric vehicles and propose an electric vehicle purchasing intention model in China's four largest cities [2]. Analyzing risks to ensure that utilities are prepared for potential changes to customer marketplace, resulting from operational requirements and establishing value chain for electric vehicle companies [3]. Estimating the development of market shares of various powertrains in different vehicle size classes and assumptions about consumer behaviour and the market environment through a non-traditional simulation model [4]. Besides, there is some new business model proposed for the electric vehicle. A holistic approach was defined to develop business models for electric mobility, analyzing the whole system and providing decisions for the enterprise [5]. Moreover, some papers research about battery for the development of the electric vehicle. Kotub Uddina, Matthieu Dubarryb, Mark B. Glick reconciled their approach to manage battery degradation and review the connected technology and policy implications to manage battery better in a vehicle and electric grid applications [6]. Over the years, we've gotten used to using strategic tools to analyze problems, like the Five Forces model, PEST, or SWOT analysis, which are utilized to interact around strategy [7]. SWOT is a strategic tool used commonly and originated in the 1960s [8]. Phadermroda et al. offer an approach to identify SWOT with customer satisfaction [9]. Some studies apply SWOT to the alternative energy field. China has always been at the forefront of the development of alternative fuel vehicles in the world. In 2013, haze-fog plagues China, so that a SWOT model was adopted to analyze the electric power substitution [10]. FANP-SWOT analysis was used to evaluate the development prospects of methanol vehicles in China, and an evaluation standard system has been established [11]. A paper provides an ANP-SWOT approach for the Chinese electric vehicle industry [12]. Moreover, a holistic approach regarding SWOT was used to enable the sustainable development of transportation in passenger vehicle parts in Poland [13]. However, there are few strategic analysis articles about electric vehicles based on a certain company's case. Especially as a newly developed Chinese electric vehicle industry, there are few relatively authoritative strategic analysis articles focusing on specific electric vehicle brand.

This paper will use the SWOT methodology to conduct a comprehensive environmental analysis of the strategic development of NIO Company. NIO Company, as a merged and established company in 2014, had experienced several important stages that were bankruptcy almost, Jianghuai's financing investment, integrated development to the US listing, and has gradually developed into an influential leader in the electric vehicle industry. According to SWOT methodology, this paper can analyze the influence of endogenous factors and exogenous factors on the developing strategy of the enterprise according to the strength, weaknesses, opportunities, and threats of NIO Company, to give some strategic plans with certain practical significance.

2. Data and Method

2.1 Data

NIO Company is a global brand of smart electric vehicles that was founded in 2014 by several leading Internet companies and entrepreneurs and was successfully launched in the United States in 2018. NIO Company is very clear to build a high-end brand. So far NIO Company has set up 13 research and development, design, production branches all around the world. In 2016, NIO Company released its first product, the EP9, one of the fastest electric cars in the world, setting an internationally renowned track record for the fastest lap. Five models have been released now. By 2021, NIO Company has become the most valuable car corporation in China, with over 69 billion dollars. Therefore, the entire automotive industry has a preliminary recognition of the high-end image of NIO Company.

The development of a brand should be closely linked to the characteristics of the times. Thus, NIO Company proposed the concept of 'car brand 3.0', which focuses on the automobile, service, digital experience, and lifestyle. Its core competitiveness is the whole experience of users. NIO Company's objective is to create a pleasant lifestyle and a car-based community, which is a place to share the joy of driving and life.

The average transaction price of three models of vehicles is 441,300 yuan. Their cumulative delivery has exceeded 140,000 units, which has achieved electric vehicle market and customer recognition; Its unique chargeable, convertible, and upgradeable NIO Power complementary system is actualizing a more convenient approach to charging; NIO company has developed its application—NIO for customer transaction. The highly digital order production can bring its users' excellent digital car consumption experience. With NIO House, NIO Life, and other communities, NIO Company creates a pleasant experience for users. As physical stores of NIO Automobile, NIO House offers many functions such as exhibition hall, office, reading, leisure, partying, etc. NIO House has opened 23 stores across the country, covering 19 cities now. NIO Space is another form of NIO physical store, which is mainly responsible for the display and sales of its products. NIO Space has opened 203 stores nationwide, covering 1201 cities to contact more users in more business circles.

2.2 Method

This paper mainly uses SWOT to analyze the NIO Company's strategy. The SWOT analysis method can be used to find out the favourable and unfavourable factors for NIO. It can discover the existing problems of the enterprise and provide a broad framework for managers to analyze NIO Company's position in the current peer enterprise, then make different strategic management plans. The four letters stand for Strengths, Weakness, Opportunities, and Threats [14]. SWOT analysis can reveal the internal strengths and weaknesses of an enterprise as well as external opportunities and threats [15]. In addition, after an enterprise can identify its strengths and weaknesses as well as the opportunities and threats posed by the environment, it also needs to make rapid responses and decisive decisions to them. Therefore, SWOT provides four strategies, namely SO strategy, WO strategy, ST strategy, WT strategy. Based on industry research, this paper reveals the internal advantage of NIO company through the SWOT analysis: its brand position, the forward integration strategy, and direct sale model, etc., and the internal disadvantages are: the huge cost of input, lack of core technology, small product differentiation, and so on. External opportunities include the increase of new energy demand, government policy encouragement, and a complete but erratic chain. External threats include intra-industry competition, declining government subsidies, and supply chain shortages. By listing internal and external factors, we provide some strategies for NIO Company.

3. Result and Discussion

3.1 Strength

3.1.1 Advantage in the market segment

NIO Company positions itself as a high-end automobile brand, Audi, BMW, Mercedes Benz, and others as its competitors [16]. All of NIO’s models start at 350,000 yuan, and the price of its top-equipped model is up to 600,000 yuan, with an average price of 426,300 yuan, which is higher than BMW (416,700 yuan), Audi (325,000 yuan), and the same as Benz (428,600 yuan). At the same price, although the sales volume of NIO is far lower than that of old brands, as an emerging high-end electric vehicle, NIO company has characteristics and attractiveness different from traditional cars and can rank among the top 10 sales volume of high-end cars, as shown in Figure 1. For the EV industry, in the current Chinese market, except Tesla, no auto company can compete with NIO at the same price, Table 1. Therefore, NIO has a great advantage in the market segment.

3.1.2 Business model

NIO Company adopts the forward integration strategy and direct sale model of “online APP + offline experience store”. Users can choose vehicle configuration and place an order independently through the official web or APP. The NIO’s APP is a comprehensive APP, which means that it can cover all services instead of providing services to users through different apps. The top 10 models with the sales volume of 420,000 ¥ to 700,000 ¥ has shown below, Figure 1.

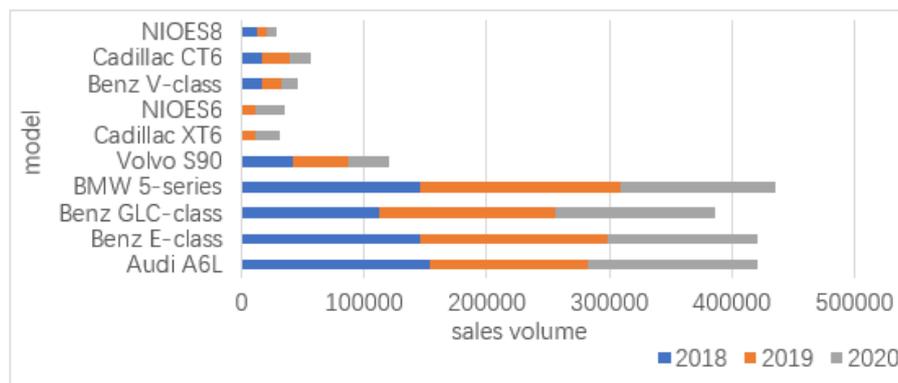


Figure 1. Top 10 models with the sales volume of 420,000 ¥ to 700,000 ¥.

Table 1. Ranking of electric vehicle sales in the first two quarters of 2021.

Ranking	Modle	Sales Volume	Manufacturer	Selling Price (ten thousand)
1	WulingMINIEV	286036	Saic GM-Wuling	2.88 - 4.36
2	Model 3	173862	Tesla China	26.67 - 33.99
3	Roewe Ei5	111875	Saic	12.88 - 16.11
4	Model Y	105635	Tesla China	29.18 - 37.79
5	Han	97167	BYD	21.98 - 27.95
6	Li ONE	55270	Li Auto	32.80 - 33.80
7	Ant	50284	Chery New Energy	5.99 - 8.39
8	ORA black cat	47087	Great Wall New energy	6.98 - 10.28
9	Xpeng P7	44308	XPeng Motors	22.99 - 40.99
10	Nezha U	41427	Modern cars	9.98 - 18.18
11	Song	36134	BYD	-
12	NIO ES6	29277	NIO	35.80 - 52.60

In addition, NIO Company is initial to operate a fans community, and the official information is published by personal accounts, which has no difference with the form of content published by users, weakening the official image and communicating with users equally. The clear interface and more than 100 iterations of the version make the NIO APP unique among auto apps and have high viscosity of hundreds of thousands of users. In the offline store, most traditional automobile Sales Service shops are located in remote suburbs, while NIO Company opens offline store “NIO House” in the core of the business district, operating independently and owning wholly. The experience store is not only for

sales, but also provides a library, cafe, shared office, parent-child community, and other services for car owners according to club standards. Although the investment is large, a high-end brand image can be established in this way to attract potential consumers.

3.1.3 Advantages of service

NIO Company has the manufacturing technology of a high-performance motor with more than 200 watts of power. It is the first EV Company in China, the second in the world to be successfully listed on the New York Stock Exchange. Moreover, different from most companies, NIO company provides owners' rights and interests, such as lifetime free warranty, lifetime free electricity changing service, lifetime free road rescue, and lifetime free off-site transportation. All of these are NIO company's advantages.

3.2 Weakness

3.2.1 High input costs

On the physical side, unlike the way that traditional car 4S stores are more open in the suburbs, NIO Company has opened offline experience stores in the downtown business circle, named NIO House, such as Beijing Wangfujing and Shanghai Lujiazui. Experience stores also include café, library and other places for customers to socialize, of which purpose is to give customers a better consumption experience and to attract ones who have similar consumption concepts with NIO company. Meanwhile, each store has a renovation cost of more than 10 million yuan and high rent of over 50 million per year, which is a substantial input cost.

NIO Company set up an electric drive research team in 2015 and has produced a total of 300,000 electric motors so far. In research and development, the total investment is more than 250 million yuan in terms of equipment testing, software development, and so on. With ES6 and ES8 both being negative gross margins, the total loss of NIO company has risen to over 26 billion yuan.

3.2.2 Lack of core technology

Currently, compared with some Japanese and American automobiles industries, NIO Company has a great distance in core technology innovation and manufacturing process, in which it cannot form short-term technical breakthroughs. The new generation of NIO's motors can reach a speed of up to 16,000 rpm, supporting a top speed of up to 200 km/h, while other mainstream electric vehicles have a top speed of 150 km/h. Nonetheless, NIO Company's independent innovation capability is weak in terms of batteries, intelligent interaction, and other crucial parts. Therefore, the key components almost rely on cooperative suppliers, which leads to a risk of bidding up prices from suppliers.

3.2.3 Inadequate Infrastructure

In recent years, China's facilities of electric automobiles are inadequate, which cannot support the demand for electric vehicles. According to the National Energy Administration statistics, as of the end of October 2020, the number of electric vehicle charging piles in China has only 107,000 and the proportion of vehicles and piles is less than 1:1, which affects the usage and promotion of NIO company's automobiles [12]. Although NIO Company has its unique charging piles, the amount cannot support the demand for electric vehicles increment.

3.2.4 The product differentiation is not enough

With the similar performance in batteries and key components to other competitors, NIO Company's price is higher than others. "Notice on Adjusting the Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles," says that except for fuel cell vehicles, the central and local subsidy standards and ceilings for various models from 2019 to 2020 will be reduced by 20% based on the current standards on December 30, 2016. Provided that incentive policy was not attractive, the public would be less inclined to purchase electric automobiles and deliveries would be influenced accordingly.

3.3 Opportunity

3.3.1 Petroleum scarce in China

China's petroleum is mainly distributed in the northeast, northwest, or ocean. Due to the high input costs and transportation difficulties, the production of China's petroleum has been decreasing in recent years, and this problem can only be mitigated by importing crude oil, Figure 2. China has been the second-largest crude oil consumption country in the world and has replaced the United States as the largest crude oil importer.



Figure 2. The Production of Petroleum in China.

Meanwhile, China's motor vehicle fuel demand accounted for a large proportion of Chinese Petroleum consumption. China Distribution of Oli Consumption in 2018 has shown below, Figure 3.

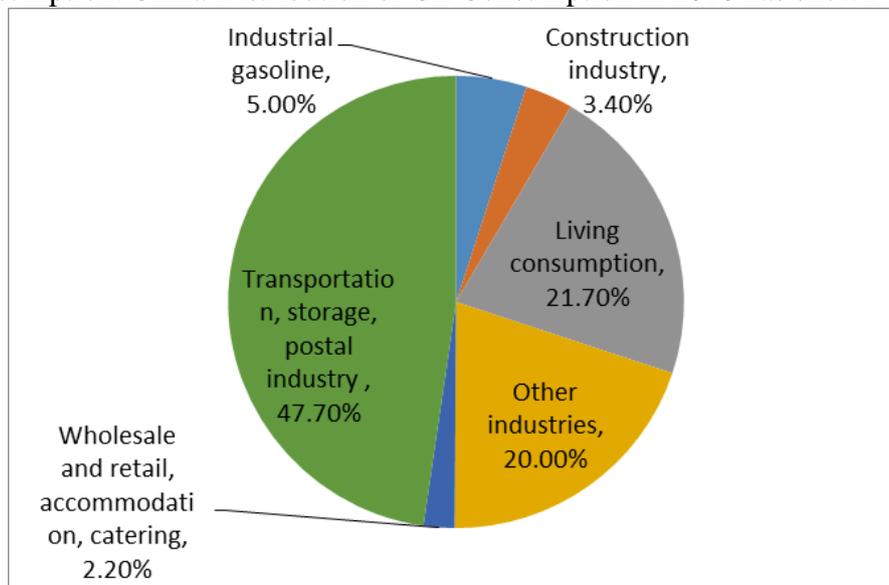


Figure 3. China Distribution of Oli Consumption in 2018.

Therefore, there have been a rising number of people who have increased their environmental awareness and tried to use substitute energy for petroleum.

3.3.2 Government promotes electric vehicles by issuing policies

As an important leading company in China's electric vehicles, NIO Company has enjoyed the comprehensive support measures issued by the Chinese government for the electric vehicle industry.

Among them, the "Energy-saving and New Energy Vehicle Development Plan (2012~2020)" was issued in 2012, which involved measures such as tax reductions and prerequisites for electric vehicle companies. And it was proposed that the government would focus on the improvement of industrial innovation technology, and invest a total of 50 billion yuan by 2020 to support the development of key technologies.

Back in 2009, to further expand the market share, the "Ten Cities and Thousand Vehicles Demonstration and Application Project" was officially launched, which involved consumption discounts, supporting infrastructure construction, purchase subsidies, and other aspects for consumers of electric vehicles.

However, in 2013, the government proposed for the first time consumer subsidies for the electric vehicle began to gradually decline, and formulated and announced the "Notice on Continue to Promote the Promotion and Application of New Energy Vehicles" policy. In 2017, the fiscal subsidies accelerated the decline, and it was expected to completely withdraw after 2020. In 2018, as a follow-up policy for consumer subsidies, the "Measures for the Parallel Management of Average Fuel Consumption of Passenger Car Companies and New Energy Vehicle Credits" formally came into effect.

3.3.3 Complete but erratic chain of producing electric vehicles

The structure of the electric vehicle industry chain is mainly divided into three areas, the automobile manufacturing chain, the three-electric system, and the software system. Firstly, as the world's largest automobile producer, China's industrial chain has been very complete after years of development. The level of intelligent manufacturing is ahead of foreign countries and has a very strong industrial chain advantage. Secondly, the three-electric system are batteries, motors, and electronic control systems. Even the supplication of these three items is controlled by suppliers, many companies have their integration technology of the three-electric system. However, for NIO Company, due to Chinese companies' process quality and output of producing IGBT which is the most important part of the motor driving, cannot meet the needs of the electric vehicle market, half of the IGBT depends on imports. Lastly, various companies, especially high-technology companies, have begun to enter the field of automotive intelligence. This devotion will help to mitigate the problem of the intelligent system which is the core sector of the software system.

3.4 Threats

3.4.1 Competition in the industry

As an essential part of green transportation, the electric vehicle industry has a promising future. Pure electric vehicles will become the mainstream of new cars by 2035 in New Energy Vehicle Industry Development Plan (2021-2035). The access requirements for new energy car production enterprises were loosened in New Energy Vehicle Production Enterprises and Products Access Management Provisions in 2020, attracting the attention of potential entrants. With the formation of the trend of the intelligent and networked automobile industry, many Internet companies around the world start to set foot in the industry. Baidu and Geely build a subsidiary to make cars, and Apple set up a team to develop the "Apple Car". Although the high industry barrier blocks some companies that want to enter the industry, it can also be expected that enterprises that can cross the barrier have strong competitiveness. In addition, as XPeng motor and Li Auto are listed in the New York Stock Exchange one after another, they stand at the same starting line with NIO Company and launch new models to compete with high-end models of NIO Company. In terms of the delivery volume in the third quarter, NIO Company delivered 24,439 vehicles, with a year-on-year increase of 100.2% and continuous growth for six consecutive quarters. Beautiful as always, however, look at a horizontal comparison: in the third quarter, XPeng delivered 25,666 cars, while Li Auto delivered 25,116 cars, both exceeding NIO company. The competition for domestic EVs is becoming increasingly fierce. What's more, Tesla, as the world's leading enterprise in EV, sold 499,500 units in 2020, accounting for 23% of the entire pure electric vehicle market. It is a major competitor for NIO Company.

3.4.2 Policy

On December 31, 2020, the Ministry of Finance and other four departments jointly issued the Notice on further improving the fiscal subsidy policy for the promotion and application of new energy vehicles (2021). The policy stated that the subsidy standard for new energy vehicles would be reduced by 20% based on 2020 and officially implemented on January 1st, 2021. With the complete withdrawal of subsidies for new energy vehicles in China, the whole industry will formally develop from a policy-subsidized market to a market-oriented market. NIO Company needs to quickly figure out how to offset subsidies and accelerate the launch of new products.

3.4.3 Shortage of supply

The rapid growth of the electric vehicle industry has entered the stage of high-quality product driving, and the requirements for capacity and technology of power battery enterprises and IGBT chips are also increasing. As far as the current situation is concerned, there are CATL, Panasonic, Samsung, SKI, EVE Energy Co., Ltd, BYD, SUNWODA, and other power battery companies. The supply-demand relationship shows a funnel shape and there is a relative shortage of supply, which indirectly affects the order delivery of NIO Company.

4. Conclusion

This paper analyzes the strategic environment of NIO based on the SWOT analysis methodology. From the perspective of internal factors, first of all, NIO Company's advantage is that as an automobile company producing high-end electric vehicles, there has few same level products in the industry thus NIO Company has strong product competitiveness; and it has multiple customer experience stores, which could offer excellent customer services. However, judging from the disadvantages of NIO Company, the battery life and power of electric vehicles are not yet comparable to those of traditional cars. NIO Company, as an independent research and development technology company, needs to invest a lot of money; but currently, the leading technology of electric vehicles is mastered in Japan and the United States; at the same time, China's infrastructure for the promotion and utility of electric vehicles is not perfect. From the perspective of external factors, NIO Company is in the golden era of electric vehicle development. Due to the shortage of petroleum resources, the Chinese government vigorously promotes electric vehicles to reduce the occupation rate of traditional vehicles and reduce the amount of oil usage, thus several discount measurements for purchasers and subsidizing measurements for enterprises have been issued; meanwhile, the production and supply chain of electric vehicles is complete so electric vehicle industry is a young but vigorous industry. However, such an advantageous industry also contains threats. Even as a listed company, NIO company has many competitors, such as BYD, XPeng, and other companies that energetically develop electric vehicles, as well as established car companies such as Audi, Mercedes-Benz, and BMW, have started to electric vehicles; also starting from 2021, the financial amount of preferential policies for the purchase of electric vehicles by the Chinese government will gradually decrease.

Above all, this paper provides some strategies by combing NIO company's strengths with opportunities and threats.

Strategies: firstly, as the first Chinese company to be listed in the United States, NIO Company has attracted the attention of many customers who are interested in electric vehicles. According to its core philosophy-pursuing technological innovation, enjoying beautiful and intelligent design, yearning for a free journey, and looking forward to a globalized community, NIO Company can expand its promotional efforts and attract more customers who are more likely to purchase Chinese-own electric vehicles. Secondly, with the financial support of policies of electric vehicles, NIO Company, as a Chinese company with no foreign investment, can continue to develop major technologies, overcome current technical problems, and make good use of the advantages of policies that support buyers, to improve their competitiveness in this industry. Thirdly, NIO Company is not supposed to rely on the advantages of the service model to cover up drawbacks on the product. It should pay more attention to product technology improvements. Lastly, according to Aerie Consulting data, product design

differentiation plays a weighting role in the entire product differentiation strategy, second only to battery technology differentiation in basic product differentiation. This shows that the appearance of the product can greatly affect the consumer's purchasing decisions. Companies can innovate in automotive designs. Good-looking shape compared with the positioning of the old cars, can attract young people's favour, become a fashion trend.

References

- [1] D Kalaitzi, Matopoulos, A, & Clegg, B. (2019). Managing resource dependencies in electric vehicle supply chains: a multi-tier case study. *Supply Chain Management an International Journal*, 24(2), 256-270.
- [2] Lin, B, & Wu, W. (2018). Why people want to buy an electric vehicle: an empirical study in first-tier cities of China. *Energy Policy*, 112(jan.), 233-241.
- [3] Hirschey, M. (2009). What's your strategy for the electric vehicle market? Consulting Paper, Oliver Wyman.
- [4] Kieckhäfer, Karsten & Volling, Thomas & Spengler, Thomas. (2012). supporting strategic product portfolio planning by market simulation: The case of the future powertrain portfolio in the automotive industry. 10.1007/978-3-8349-3722-3_6.
- [5] Kley, F, Lerch, C, & D Dallinger. (2011). new business models for electric cars: a holistic approach. *Energy Policy*, 39(6), 3392-3403.
- [6] A, K. U, B, M. D, & B, M. G. (2018). The viability of vehicle-to-grid operations from a battery technology and policy perspective. *Energy Policy*, 113, 342-347. Mapping the landscape of strategy tools: A review on strategy tools published in leading journals within the past 25 years
- [7] Spee, & Andreas. (2007). Strategy tools as boundary objects: a strategy-as-practice perspective. Aston University.
- [8] Bower, J. L, & Irwin. (1991). Business policy: text and cases. Harvard Business Review.
- [9] Phadermrod, B, Crowder, R. M, & Wills, G. B. (2016). Importance-performance analysis-based swot analysis. *International Journal of Information Management*, 44, 194-203.
- [10] Niu, D. X, Song, Z. Y, & Xiao, X. L. (2017). Electric power substitution for coal in China: status quo and swot analysis. *Renewable and Sustainable Energy Reviews*, 70(APR.), 610-622.
- [11] Li, C, Negnevitsky, M, & Wang, X. (2020). Prospective assessment of methanol vehicles in china using fans-swot analysis. *Transport Policy*.
- [12] Wang, X., Li, C., Shang, J., Yang, C., Zhang, B., & Ke, X. (2017). Strategic choices of China's new energy vehicle industry: An analysis based on ANP and SWOT. *Energies*, 10(4), 537.
- [13] Kp, A, Jk, B. & Mk, C. Why polish market of alternative fuel vehicles (afvs) is the smallest in Europe? swot analysis of opportunities and threats - sciencedirect. *Renewable and Sustainable Energy Reviews*, 133.
- [14] Weihrich, H. (1982). The TOWS matrix—A tool for situational analysis. *Long range planning*, 15(2), 54-66.
- [15] Ansoff, H. I. (1980). Strategic issue management. *Strategic management journal*, 1(2), 131-148.
- [16] Shao Lu. Research on Competitive Strategy of NIO Automobile Co., LTD. [D]. Yunnan Normal University, 2021.