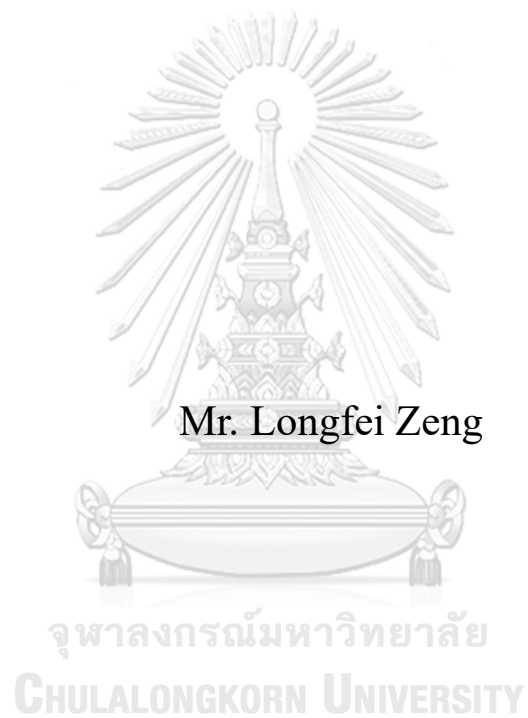


The strategic development of Tesla Motor's new energy vehicles  
in China



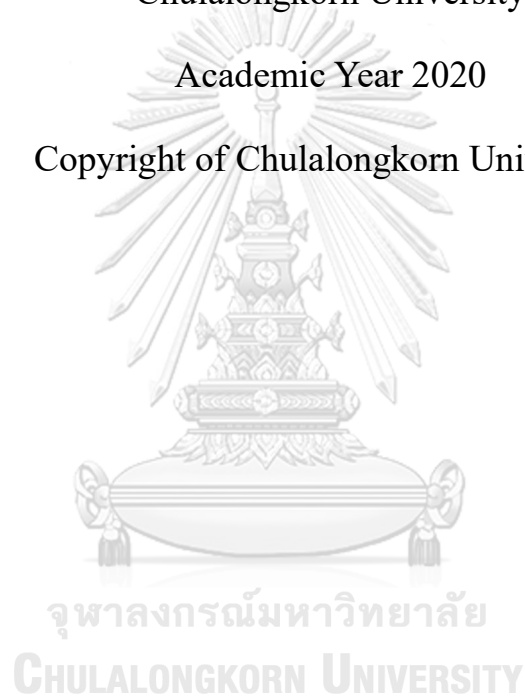
An Independent Study Submitted in Partial Fulfillment of the  
Requirements  
for the Degree of Master of Arts in Business and Managerial Economics  
Field of Study of Business and Managerial Economics

FACULTY OF ECONOMICS

Chulalongkorn University

Academic Year 2020

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จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

Independent Study Title	The strategic development of Tesla Motor's new energy vehicles in China
By	Mr. Longfei Zeng
Field of Study	Business and Managerial Economics
Thesis Advisor	RATIDANAI HOONSAWAT

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Accepted by the FACULTY OF ECONOMICS, Chulalongkorn University in  
Partial Fulfillment of the Requirement for the Master of Arts

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จุฬาลงกรณ์มหาวิทยาลัย  
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Abstract: New Energy Vehicles(NEVs) are still at its beginning phase, yet the competition is also rising day by day. As Tesla Motor has achieved a huge success in Chinese market, selling hundreds of thousands of NEVs in china every month, its success in Chinese market has drawn enormous attention. By using PEST, SWOT and Porter's Five Force Model, this paper analyzes Tesla's decision to enter China and inspect both the internal and external factors attributing to its accomplishments. The result shows that externally, China's economic condition and political environment are favoring Tesla's development and internally, Tesla's low energy and fuel cost and Shanghai Mega-factory are also playing a positive role.

Key words: Tesla, New Energy Vehicle, China

## 1. Introduction

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Automobiles have been labelled by many as "the machine that changed the world". Automobile industry, for its labor intensity, technological innovation and employment, plays an indispensable part in economy. However, with the worsening of global energy crisis, the depletion of petroleum resources and hazardous pollution. on the 11th of march, 2019, In a press conference at the Second Session of the 13th National People's Congress, the then Minister of Ecology and Environment Li Ganjie said that among the pollution emissions, motor vehicles are one of the four major sources and the exhaust gas emitted by automobiles, including carbon monoxide, hydrocarbons, and nitrogen oxides, accounts for 70– 80% of atmospheric pollution in the metropolitan areas. Therefore, the environmental pollution caused by the continual increases in traffic volumes cannot be ignored (Tang, 2015). At the same time, with more and more cars sold and put in use in china, the consumption of fuel will continue to rise, as the majority of them are traditional engine cars run on petroleum. So It is reasonable to predict that the oil supply and demand situation problems will be more serious under the circumstance of increasing car ownership (Sierzchula et al., 2014). It is now widely acknowledged that energy conservation and emission reduction are the goals of future automobile development. Traditional vehicles are losing their edge and NEVs are gaining their momentum and believed to be the future trend. NEVs are those that depend on electricity, hydrogen, dimethyl ether, and other unconventional fuels, and in this paper's we specifically refer to the one that run on electricity.

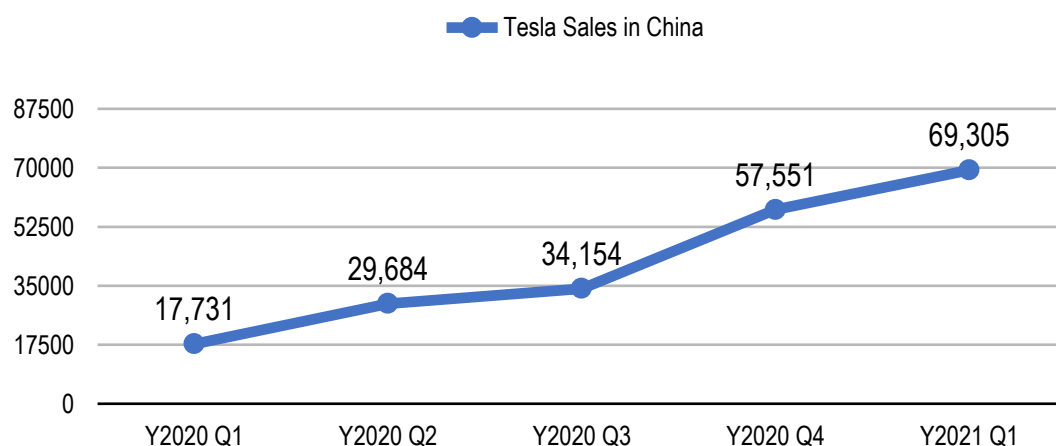
As the second largest economy across the globe, China is a market full of appeals to automobile enterprises. According to the China Association of Automobile Manufacturers (CAAM), commercial vehicle sales were 4.324 million units in 2020.

With the rapidly growing number of automobiles, China has encouraged the development of new energy vehicle, for example, in the year of 2008, China launched its project of "ten cities, thousand of NEVs". Since then, NEVs industry became to receive more attention.

This is an ever changing century, each day may witness a different trend. The businesses are also experiencing drastic changes. The business models that prevailed may no longer work at present. The supply side driven logic of the industrial era that only focus on technology innovation is no longer viable, rather, a successful business model becomes indispensable to convert technology innovation to high firm performance (Baden-Fuller and Haefliger 2013; Chesbrough 2007). Companies are not only focusing on the products but also ways to interact with consumers.

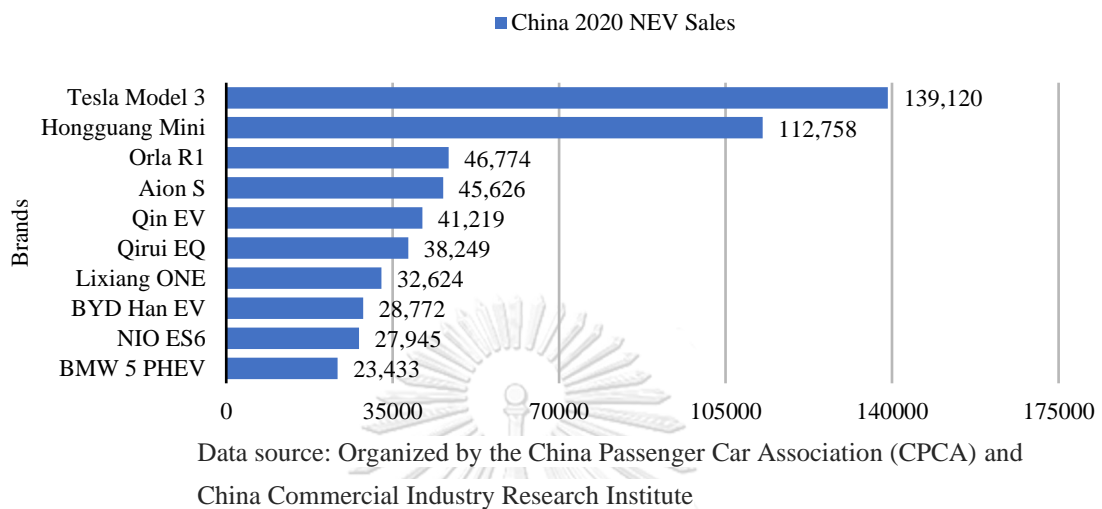
As one of the leading corporations in new energy vehicle, Tesla Motors sees immense potential in Chinese market and is exploring it. It has built the "mega factory" in China's biggest city Shanghai and has achieved a certain level of success. According to a CNBC report, Tesla's China sales more than doubled in 2020 than 2019. In 2020, Tesla sold around 139,120 vehicles in China, accounting for nearly one-third of its global sales. Each quarter sees remarkable increase, with Q1 2021 reaching three times the sales of that in the Q1 2020. What is even more amazing is in the first quarter of 2021, Tesla Also, Tesla Model 3 has become China's new energy vehicle sales champion in 2020. According to the China Passenger Car Association (CPCA), via Moneyball, the total Made In China-Model 3 sales amounted to about 23,804 in December 2020 and 137,459 in 2020 (the #1 result for all NEVs in China).

Table 1. 2020 Annual Sales of Tesla Motor in China



Data source: insideevs

Table 2. 2020 Annual Sales of NEVs in China



With the achievements a question arises: What makes Tesla so successful in Chinese market? This paper aims to analyze the development of Tesla in China. In the field of traditional automobiles, China has fallen far behind Western countries in terms of technology and brand. However, in terms of NEV, China and Develop countries are not too different. Chinese government strongly supports the development of NEVs in order to catch up with the traditionally powerful car manufacturers and even surpass in this field. It now appears that compared with the electric vehicles produced by Western countries, the electric vehicles of Chinese self-owned brands such as BYD are not lagging too much behind, but the electric vehicles of Chinese self-owned brands are not as popular as Tesla as the data indicates. So this paper has it significance, it can provide Chinese local NEVs producers insights and ideas, which may be useful for improving their own performance by learning the successful points of Tesla.

## 2. Background and Literature Review

Governments are one of the most powerful and influential bodies in the world, they exert impacts on almost every aspect of the economy, culture and society. Zhou et al. (2015) claimed that government policies can play an important role in accelerating the EV market after reviewing EV-related incentives in the United States, China, Japan, and some European countries. What is more, the topic of governmental policies

pertaining NEVs has been researched by a number of people, some analyzed them within a company, such as China (Gong et al., 2013), the United States (Greene et al., 2014), and Norway (Bjerkan et al., 2016). Yet others did policy comparison across nations. Many of them indicate that countries should draw lessons from each other and even adapt others' ideas to their own circumstance.

Also, consumers are the direct force as it is they who purchase the products, so many papers have taken a dive into consumers' attitude toward NEVs. A number of papers have studied Tesla's strategies. Mangram and Myles Edwin think Tesla's 'new technology-based approach to automobile marketing and relates it to the successful marketing model of Apple Computer. This marketing approach is different from the traditional automobile industry's marketing management approach of favoring mass marketing and mass production (Mangram and Myles Edwin, 2012).

Maurice Stam believes that in order to achieve sustainable development, Tesla needs to improve its service and meet customers' growing needs. Alyssa Webb (2014) says that Tesla's development is hindered by the charging network and sale mode. (Maurice Stam, 2014)

According to Chen Y., Perez Y., Tesla utilizes a top-down and flexible product strategy: Tesla Motors holds a product strategy, it first enters the high-end market and then moves to mass market customer sector. Also, Tesla Motor holds a new value configuration which involves a high level of vertical integration towards battery and recharging network. The integration strategy will reduce coordinate costs between carmakers and their suppliers, and reduce risks caused by lack of supporting infrastructure. However, it also involves high investment and risk coming from the uncertainty of the NEV industry (Chen Y., Perez Y. 2018).

### 3. Methodology

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#### 3.1 PEST analysis method

PEST analysis is a methodology which identifies the influences of the environment with each letter standing for as political, economic, social, and technological respectively. Political environment, namely, is about the politics. It includes the social system, the office-holding party and their policies and laws. In different countries, the natures of the politics are disparate, even for the same countries, when experiencing different periods, have different attitudes towards organization activities. For economic aspect, there are mainly Macro and Micro. Macro refers to the population,

GDP and other variables which are able to reflect the standard and speed of the growth. Micro on the other hand, is about the income of the consumer and their preference, savings and even employment. Things like these will decide the scale of the market. Social-cultural environment has a lot to do with the education level, religious belief and values. These will affect the needs of citizens. For example, some activities and products are promoted or prohibited because of the religions. Technological environment is the relevant technology developments. PEST takes into consideration of these four aspects. The results of this analysis are useful when it comes to obtaining the benefit of opportunities, and consequently prepare contingency plans for the imminent threats. PEST analysis is a valuable strategic method to anticipate the market decline or growth, business status, potential for improvement, and develop future operational strategy. PEST is especially helpful when an organization or corporation is planning to go into a new market or country.

### **3.2 SWOT analysis method**

SWOT analysis is a way to base analysis on the inner and outer competitive environment, S is for strengths, W is weakness, O is opportunities and T threats. It lists clearly different advantages, disadvantages from the internal perspective and the opportunities and threats from an exterior point of view through investigation, and then uses system analysis, try to match up the factors with each other for analysis. Using this method, it's possible to make it well-rounded and precise and systematic research after whole picture, In this way the researchers can make up some relevant strategies that are for the best interest of the corporates .

### **3.3 Porter's five forces model**

Porter's five forces model was suggested by Michael Porter. He thinks that the attractiveness of the industry and the competitive strategic decisions of existing corporates and the degree and scale of competition are generally determined by five forces. The five forces consist of the competitiveness of existing competitors in the industry, the ability of potential competitors to enter, the ability of substitutes, the bargaining power of suppliers, and the bargaining power of buyers.

The bargaining power of supplier means that the supplier's capacity of controlling the price and quality of the elements to influence the profitability and competitiveness of the products in the industry, if the elements provided by the suppliers make up for a large proportion of the company's products or the elements are provided only by few suppliers, then the bargaining power of supplier is strong, otherwise weak. The

bargaining power of consumer is that consumer can demand higher quality product or service by reducing the price. Threat of the new entrants is that when new comers join a market, they will inevitably want to take up a market share, which leads to competition between the existing companies and possibly the reduction of profitability. Threat of substitute is that in a market, there will be companies producing goods that have the similar or same functions, replacing each other.

## **4. The development of NEVs and Tesla Motors**

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### **4.1 The development of NEVs in China**

In Europe and the US, the government has set up higher emission standards for automobiles. Major car companies have increased their deployment in the field of NEVs. At the same time, many automobile manufacturers have emerged and they have very strong innovation capabilities. NEVs industry was established under this context.

China's research and development of NEVs can be dated to the around 60 years ago in about 1960s. At that time, China was experiencing turbulence, economic development was lagged behind, with very little investment in NEVs. However, starting from 1980s, China began to devote itself to the research on NEVs, and in the "Eighth Five-Year Plan" and "Ninth Five-Year Plan", the government also proposed that NEVs should receive more attention. In the year of 2009, for promoting the rational layout of China's car industry, the State Council released the "Automotive Industry Adjustment and Revitalization Plan", which clearly revealed that as the future development direction of NEVs, China should also vigorously develop NEVs and related auxiliary industries. In order to promote the consumption of NEVs in the market, in 2020, China introduced a bunch of ways to stimulate NEVs industry. In April, 2020, the relevant government departments released the "Announcement on the Policies Concerning the Exemption of Vehicle Purchase Tax on NEVs" and the "Notice on Improving the Financial Subsidy Policies for the Promotion and Application of NEVs". In October, The State Council Standing Committee meeting passed the "NEV Industry Development Plan (2021-2035)".

### **4.2 Introduction of Tesla Motors**

Tesla Motors was set up in 2003 and is headquartered in Silicon Valley as it presents a high-end image, the high-tech center of the United States. Tesla Motors named itself



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after the famous American scientist and inventor Nikola Tesla. Nikola Tesla was a big success in science, especially in physics, and his contributions have benefited the entire mankind. Tesla released its first Zero-emission car Roadster in 2009. The 2009 Roadster electric car is priced as high as 109,000 US dollars in the US. Therefore, many say that Tesla is not a car that aimed for everyone. According to the global sales data released by Tesla in 2020, the company has delivered a total of 499,550 new cars in 2020, once again setting a new record since the establishment of the brand.

## **5. Macro-environmental analysis—PEST analysis**

### **5.1 Analysis of political and legal environment**

In recent decades, from the environmental protection point of view, China has been a committed proponent for the development of NEVs, and has successively introduced a number of policies to foster the development of NEVs. However, China does not have relevant policies to support the development of electric sightseeing vehicles. It only makes some requirements for the use of NEVs in the scenic area, and has not issued clear supporting policies and standards.

China encourages the development of NEVs, and the development of NEVs in China is mostly dominated by electric vehicles, this is a fact that no one can neglect. In 2010, many departments, including the National Development and Reform Commission, the Ministry of Science and Technology, and the Ministry of Industry and Information Technology issued the "Notice on Carrying out the Pilot Program of Subsidy for Private Purchase of NEVs". According to this, if people purchase NEVs, then they can get subsidized awards. The "Notice on Carrying out the Pilot Program of Subsidy for Private Purchase of NEVs" said that if individuals buy and register an NEV, they can receive a one-time full subsidy, which can be used to reduce the payment. The amount of the subsidy is according to the battery size and the expected NEDC mileage of the electric vehicle. For NEVs that meet China's support standards, the government will offer a subsidy of 3,000 yuan per kilowatt-hour. The maximum subsidy standard for one hybrid electric vehicle is 50,000 yuan, and the maximum subsidy standard is as high as 60,000 yuan. Thanks to the vigorous policy support, domestic car manufacturers were entitled a precious chance to boost R&D efforts, and consumers' wants for NEVs consumption was also aroused, which drastically encouraged the development of electric vehicles; however, as the NEVs industry is still an emerging industry, market access and related industry standards are not yet well-rounded. But confidence has been shown that China's policies in the future will have a positive effect on the future prospect of the industry.

For the purpose of increasing the market consumption of NEVs, in the year of 2020, China has introduced a number of policies to encourage the development of NEVs. In 2020, government departments issued the "Announcement on the Policies Concerning the Exemption of Vehicle Purchase Tax on NEVs" and the "Notice on Improving the Financial Subsidy Policies for the Promotion and Application of NEVs". In October, "NEVs Industry Development Plan (2021-2035)" was introduced. Compared with the changes in subsidies in 2019 and 2018, the new policy in 2020 will continue to raise requirements on the technical indicator of battery life, and the amount of subsidies will also be reduced accordingly. The overall reduction is 10% (pure electric) and 15% (plug-in power). Hybrid), for example, for models with a range of 300-400km, the subsidy has been lowered from RMB 18,000 to RMB 16,200. However, if you want to enjoy the subsidy this year, the price of the vehicle before the subsidy must be less than 300,000 yuan (including 300,000 yuan).

In addition to these favorable national environments, Tesla also received an invitation from the Shanghai government to establish a "super factory" in Shanghai and signed a "gambling agreement." The Shanghai government issued a loan to Tesla at a relatively low interest rate (as low as 3.9% per annum), and sold the factory land to Tesla at a tenth of the price. This move helped Tesla solve the problem at the same time. The two problems of capital and land have been solved. As part of the "gambling agreement", Tesla also promised to pay 2.23 billion yuan in taxes to the Shanghai government every year after 2023, and to achieve 100% "domestic production" of parts and components. This move not only reduced Tesla's production and manufacturing costs, but also increased people's confidence in Tesla's market due to the "cooperation" with the Shanghai Municipal Government. From January 7, 2019, Tesla's Shanghai megafactory broke ground, and on January 7, 2020, the first batch of domestically produced Model 3 was delivered. Tesla completed the purchase of land, plant construction, and acquisition in just one year. All the work of qualification and commissioning was amazingly fast.

## **5.2 Analysis of economic environment**

In the year of 2019, China's economic condition was overall stable, the development quality was steadily climbing, and the main expected goals were better achieved, laying a decisive foundation for a well-off society in a well-rounded way. Entering 2020, the sudden Covid-19 pneumonia epidemic has had an unprecedented impact on the Chinese economy. China's national economy is growing steadily, and the industrial structure continues to be optimized. The annual gross domestic product is around 99 trillion yuan. Resident consumption has picked up quickly, and

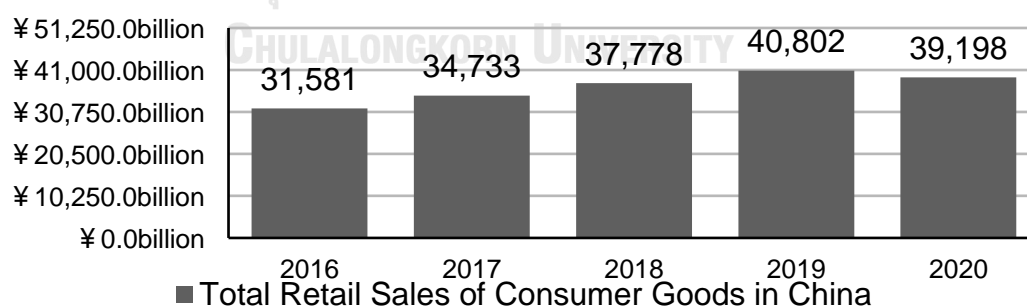
consumption upgrades have also been positive. The total retail sales of consumer goods for the year was 4,11649 billion yuan, showing an increase of 8.0%. By business location, the retail sales of consumer goods in urban areas was 35,531.7 billion yuan, an increase of 7.9%; the retail sales of rural consumer goods was 6,033.2 billion yuan, an increase of 9.0%. The pace of upgrading the consumption structure is accelerating. The retail sales of cosmetics, communication equipment, sports and entertainment products, household appliances and audio-visual equipment of units above designated size have increased by 8.7, 4.6, 4.1 and 1.7 point percent respectively faster than the growth of retail sales of goods above designated size. In 2019, residents' income increased steadily, and the employment situation remained stable. The national per capita disposable income of residents was 30,733 yuan, a year-on-year increase of 8.9%, and the actual growth after deducting price factors was 5.8%, which was basically the same as economic growth.

Table 3. Total Retail Sales of Consumer Goods in China Year 2016-2019

Source: National Statistics Bureau

Also, the NEVs industry overall is booming as well, statistics show that the sales have been on the rise. This creates a positive overall environment for Tesla NEVs, too.

Table 4. Monthly Sales of NEVs in China of Year 2020





Source: China Automobile Dealers Association

### 5.3 Analysis of Social environment

Nowadays, traditional energy sources are becoming depleted and environmental pollution is getting more and more serious. People and countries around the world are all thinking about ways to develop environmentally friendly and clean energy. We face many issues like haze, and we really need to reduce the pollution of automobile exhaust to the air and truly realize the sustainable development of mankind. Under such circumstance, all products that are aimed at environmental protection will be favored by consumers, such as Green Home, appliances with least possible pollution and consumption. As an environmentally friendly product, NEVs are at the interest of humankind. People will embrace it.

Unfortunately, the traffic in China is not as satisfying. For it, cars cannot save us travel time. On the contrary, they will add some extra burden for us when we go out, which is opposite to our initial intention of vehicle purchasing. Since the Reform and Opening-up has been implemented for more than 40 years, China's economy as well as urbanization level has been increasing annually. In 2019, China's urbanization rate has reached 60%. Yet more and more people use private cars to commute and this has add extra burden to the cities traffic, the roads are getting more and more crowded. Although the city infrastructure facilities has witnessed a huge improvement, there are still many problems for example the routes planning are not as reasonable, the traffic management is somewhat chaotic, and the roads function are not developed enough to meet the needs for urban development.

Moreover, the mindset for Chinese consumers will unlikely to have radical changes in a short period of time. The majority of buyers still prone to purchase traditional vehicles, and they are more rational in terms of vehicle consumption.. Although people still pay a lot of attention to high-end cars, consumers are prone to purchase more economical and practical cars.

#### **5.4 Analysis of technological environment**

China has invented different kinds of NEVs. During the process, it has encountered and resolved numerous difficulties and started to have its own experience. However, we should also be sober. It is recognized that compared with the international advanced level, we still have a big gap. First, China's NEVs have deficiencies in core component technology. Although China continues to make breakthroughs in the field of NEVs, as a whole, China is still a rather beginner in the field of NEVs, and when it comes to core components, the research & development are still lagging relative to the international advanced level stage. Second, China's infrastructure is incomplete. For electric vehicles, charging stations are a must and they are currently far from being built in China to meet the development needs of NEVs. For NEVs to achieve the goal of industrialization, it is crucial to be able to make charging more convenient and faster. Otherwise, it is not easy for consumers to fully accept NEVs. Regarding the current charging stations in China, according to the charging pile operation data released by the China Electric Charging Infrastructure Promotion Alliance in November 2020, as of November 2020, the member units of the alliance have reported a total of 695,000 public charging stations. If you count the number of private charging stations, as of November this year, the cumulative number of charging infrastructure (public + private) nationwide was 1.539 million units, a year-on-year increase of 31.1%. Although the number has increased, for China with such a large volume, the number is still insufficient and the development is not perfect.

China has some natural advantages in developing electric vehicles. To begin with, China is has a rich deposit of lithium and the industrialization of lithium batteries has reached a relatively high level, so the production of lithium batteries has already has a solid foundation. Now, the R&D investment of lithium batteries has improved, and the Chinese lithium batteries are so far performing relatively stable. On top of that, the number of lithium batteries currently produced in China ranks third in the world, with a global market share of around 30%. In 2019, China produced 15.722 billion lithium-ion batteries. Thanks to the commonality in production technology, China is quite capable of large-scale production of the electric vehicle lithium battery industry.

Finally, China is the largest car manufacturer in the world, with a wide range of quantities and a good technical foundation.

Pest analysis for Tesla Motors seem to be positive, and it has great conditions for Tesla to explore in Chinese market. Politically, China's society is stable and peaceful, policies have been released to support the NEVs industry and thus Tesla too. Economically, China's GDP and consuming power is also on the rise. Socially, people's awareness of environmental protection is getting stronger and technologically, China is relatively advanced in lithium battery and is building more and more charging stations for NEVs.

## 6. Analysis of Porter's Five Forces Model

### 6.1 Threats from potential entrants

In the year of 2009, in accordance with "Automotive Industry Development Policy" Chinese government issued the "New Energy Vehicle Manufacturers and Product Access Management Rules", setting bars for NEVs companies to enter the field, these bars have included external and the internal ones. The external conditions include the abeyance to laws and approval from the state. The internal conditions are: the company must be equipped with the capacity to design and develop NEVs; it should make sure that the NEVs produced have no noticeable quality differences; the company must have the marketing and service capabilities of NEVs ; A smooth supply system must be established with upstream suppliers of NEVs.

External limits are not so difficult to reach for those who wish to enter the field. Now, China has a relatively sluggish macro economy, especially compared with the first decade of the millennium, and the air pollution has been a hot potato. The state has been struggling to achieve its goal of economic transformation. As an environmentally friendly vehicle, NEVs have received great support from the country, so the bars for potential entries has been lowered. Yet, for the purpose of effectively reducing vicious competition in the NEVs industry and avoiding unnecessary deadweight loss and make sure that the industry's healthy Eco-system, the state basically eliminates non-automobile production. The NEVs industry is still in the lead-in period. Despite that fact that there have been a couple of breakthroughs in terms of core technologies in this field, some technologies are just not mature enough. Continued R&D demands a big amount of investment. Therefore, many possible new comers cannot produce scale effects in the first place, and R&D demand even

more large-scale capital investment. Products produced must be in line with the national quality standards and be able to be sold without much difficulties. In addition, the procurement system for NEVs is not the same with the one for traditional vehicles. If an enterprise enters the electric vehicle industry, a procurement system that is compatible for NEVs should be built. Companies that have already engaged in the production of electric vehicles are also easy to find that in order to enter the field, a considerable big amount of initial input cost should be ready, and obtaining subsidies from the state without producing a product is no longer possible, and furthermore, their counter risk ability is rather unsatisfying. The cost is high, and chances to produce products with higher quality and lower price than the existing automobile manufacturers are small. Overall, the threat of potential entrants is not as big.

## **6.2 Bargaining power of suppliers**

When we consider the units used in NEVs, they generally fall into two categories. The first type is the ones that are compatible to traditional automobile, and the second group is that are specifically made for NEVs. So that the units needed by NEVs can be provided by conventional auto manufacturers. However, other units, such as power batteries, might be beyond the supply of traditional car manufacturers, and thus must seek the newly established NEVs parts manufacturers. Thanks to the long establishment of conventional manufactures, there are already a bunch of suppliers ready to be used and the units are of industry standards. So the price for this kind of parts will be generally less and the suppliers have weaker bargaining power, which means that the NEVs we will have more bargaining power. Whereas for the electric vehicle parts, they have to be supplied by new suppliers and due to the large investment in the initial period, the production of these parts will be very different and they require special technologies and resources, and the number of suppliers will be smaller. Therefore, the bargaining chip of electric vehicle parts suppliers is higher and the bargaining power is also stronger. Cost control is essential. In summary, compared with traditional auto parts suppliers, suppliers who specialize in electric auto parts have stronger bargaining power.

## **6.3 Bargaining power of customers**

The demand for electric vehicles are mainly divided into governmental demand and social demand. And the development of EV has largely something to do with the strategic development designed by the government, so from this point of view, The government has the responsibility. Right now the electric vehicles are mostly used by

governmental departments, and asked to take is the consumer for electric vehicles the government should take a certain amount of social responsibility, It's procurement of electric vehicles are more or less of some kind of public benefit. And its purchase is to set a signal to the industry and also the consumers, joint attention of consumers to the electric Vehicles. Hi Heather the government is not really sensitive about the approximate price it's usually done by the means of bidding. But for public demand the consumers are very sensitive about the price of electric vehicles, and they have a stronger bargaining power. For some consumers even if they have some very strong awareness of environmental protection, the Purchase is largely individual behavior so they have to rise decide whether they want to buy it or not, and it's impossible to force them to buy the electric vehicles just by awareness. So compare with governmental agencies that have some certain policy knees, the consumers with social demand actually have stronger party in power.

#### **6.4 Threat of substitutes**

Substitutes widely existed in our every day life, and it is the substitutes that make the market more competitive. Chinese electric vehicle industry has a relatively same start with developed countries and the purpose of China developing electric vehicles is too hope to catch up with the developed world In automobile field. That is largely traditional vehicles, and electric vehicles only account for a small proportion around 5%, so the traditional vehicles are still the substitutes of electric vehicles.

The threat of substitutes are influenced by the price of the products and switching cost. Right now, for a same level vehicle, the traditional engine version is cheaper than the electric version, for example BMW X3 sells at the starting price of 389,000 rmb whereas the electric version BMW IX3 sells at 509,000 rmb, so the price and switching cost is low.

#### **6.5 Competition from existing competitors**

It is now fair to say that China is also adopting relevant guidelines to set bars to regulate the number of electric vehicle manufacturers. The number of existing electric car manufacturers is much smaller than that of traditional car manufacturers, so their competition is not as intense as that of traditional car manufacturers. However, there are also many independent new energy vehicle brands from China, such as "Xiaopeng", "Nio", "Lixiang" and "Jike". These brands should not be underestimated. Taking the monitoring data on October 9, 2020 as an example, Tesla' s market value has exceeded 400 billion U.S. dollars, and Weilai' s market value has reached 27.1 billion U.S. dollars, even if it is the ideal that has just landed on the US stock market



in 2020. Both Auto and Xiaopeng Auto performed well in market value. Electric vehicles of these brands generally have better hardware configurations and are more localized. In addition, traditional car companies are also marching towards NEVs. For example, luxury brands such as Mercedes-Benz, BMW, and Audi have launched their new energy models ES6, IX3, E-TRON, etc. to seize the high-end market. And Volkswagen, Mustang-E and other brands have also launched new energy models with more affordable prices, and the price is comparable to Tesla's Model 3. Therefore, although Tesla currently has an advantage in sales, the competition will be more and more fierce.

## 7. Micro-environment analysis--SWOT analysis

### 7.1 Strengths

#### 7.1.1 Eco-Friendly

Zero emission and no pollution. The Chinese air pollution problem has been at the center of peoples discussion for almost a decade. And more and more patients have died from respiration system related diseases year after year. It is in the mindset of each government across the world that temperamental protection cannot be neglected and China is no exception. The Chinese government has Take a nap measures to tackle the problem of air Pollution. Resize the emission from factories the exhaust from private cars are also a major source of pollutant air as they generally contain some oxide another poisonous gases. Electric vehicles like Tesla they provide the power through batteries that stage will not produce any harmful gases, and he's does labeled as environmentally friendly vehicles. .

#### 7.1.2 Lower Maintenance fee

Less maintenance costs. For a traditional car it needs to be maintained for every 5000 km it's been driven and the cost for him maintenance differs from hundreds to thousands yuan. The better the car, the higher the maintenance is correspondingly raised, And the maintenance include replacing engine oil and oil filter element, replacing gasoline filter element, changing gearbox oil, tire maintenance and replacing air filter element. However the maintenance cost for Tesla on the other hand

is lower as it does not come with an engine, so the cost is mostly for battery checks, tire and air filtering element.

### 7.1.3 Lower cost of energy

The use cost of energy is lower. As we all know that petroleum is a non-renewable resource so it will inevitably rise in the future, accordingly the cost for using traditional vehicles will rise too. Comparatively speaking traditional vehicles have a higher driving cost in terms of these fuel. Take Audi Q5L and Tesla Model Y as an example, these two cars are basically of the same price in the market. Q5L Consumes around 11 L of gasoline for each hundred kilometers it drives, And each liter of gasoline costs 7.4 yuan, So the cost is 0.81 yuan/km for Audi Q5. Model Y can drive up to 500 km in real test with the expenditure of 70 degree of electricity, which is 1.8yuan per degree if we use the fastest charging way and 126 yuan in total. so for each kilometer, Model y cost 0.25yuan, less than a third of that cost of Q5. And if we use regular home charging station, the cost is only 1/3 of that after fastest charging system, So accordingly, The expense for each kilometer will go down by 2/3 further. and it is obvious that the cost for driving an electric vehicle is a lot lower than driving a traditional vehicle.

	Audi Q5L	Tesla Model Y
Maintenance fee	3,000rmb/20,000km	1,700rmb/20,000km
Cost of energy	0.81rmb/km	0.25rmb/km

Table 5. Cost Comparison Between Audi Q5L and Tesla Model Y  
data source: Qichezhijia (www.qichezhijia.com)

## 7.2 Weaknesses

### 7.2.1 Small scale economy

Forming the scale economy that is not easy and The industry also faces a high profit risk. The traditional automobile brands Were established the case or even a century ago and they have had a stable and big share of the market. Their production has already reached a certain extent which means their unit production cost has increased due to the scale effect. Where else for Tesla and EV's the market share is very low

compared with traditional automobiles and the whole industry is also quite small so it's not easy to form a scale economy in anytime soon this means that the unit production cost will still remain relatively high. The high cost of units will inevitably contribute to a surge in their prices, which will impact the market demand, Intern the weak demand will let you weak profitability of the corporate. Overall Tesla NEVs have poor counter-risk capacities and a higher profit risks.

### **7.2.2 Battery performance**

The performance of the battery is another issue that cannot be over emphasized. The stability of the lithium batteries used in Tesla or vehicles are not performing as stable as traditional engines. And safety is another issue that has raise the peoples eyebrows. For example, there have been a couple of fire incidents happened to Tesla vehicles, many of which are due to its unstable performance of lithium batteries. Right now, the stability of the battery is still an unavoidable obstacle that limits the further development of Tesla vehicles. Wether the consumers' concern about battery safety is well grounded, the stability of the battery is certainly an issue that it needs to address. At the same time, battery life span, though has improved a lot, is still relatively short, with a high cost for replacing one. Lithium batteries used in Tesla vehicles generally less than eight years. To tackle this problem, According to Tesla.com, they provide a battery warranty for 8 years, if the capacity shrinks by 30 percent after 8 years or 160,000 km, Tesla will provide a free replacement. However, according to Current Automotive.com, for Tesla Model 3, which sells at 249,000 rmb, the replacement of battery cost 104,000 rmb, that is to say, battery accounts for nearly half of the car in terms of price. Therefore cost of battery replacement is a big concern for consumers to consider when they want to purchase a Tesla vehicle, it more or less hinders consumers from doing so.

### **7.2.3 Poor charging capacity**

Now, more and more consumers are living a quicker and more efficient lifestyle. In the latest Tesla Super Charging Station V3, combined with the on-transit battery preheating function and high-power charging capability, the V3 Super Charging Station shortens the charging time compared to V2. Under peak power, 15 minutes can add about 250 kilometers of cruising range for the vehicle. In theory, it takes 30 to 40 minutes to fill 500 km, which is still much longer than the refueling time.

## **7.3 Opportunities**

### **7.3.1 large market capacity**

The large market capacity in China means Tesla will have plenty of space to expand. At present, China's consumer spending power that can not be underestimated since it is already the second largest economy in the globe. Many luxurious friends across the globe we got china has their target market and an important battlefield. According to the China Association of Automobile Manufacturers (CAAM), commercial vehicle sales of the entire year were 4.324 million units. As the world's largest passenger car market, China has a large market demand. In high-end market, high-end cars with independent brands in China are not receiving welcome by local consumers, hardly any local cars can sell at a price higher than 300,000 yuan. The current high-end car market in China is dominated by manufacturers from abroad. In recent years, Tesla Motors has begun to target the Chinese market, with the hope of getting a slice of the Chinese high-end automobile market. After entering China, Tesla Motors will definitely have bigger potential and vast space to explore.

### **7.3.2 residence awareness**

As residence awareness of environmental protection continues to increase, it will inevitably make people pay their attention to electric vehicles. The reform and opening up in China has certainly witnessed a huge leap forward, yet it also came with the side effects of environmental pollution and resources waste. In recent years, China has been struggling with haze and smog, Which drastically reduce the people's life quality and health. So people are encouraged to welcome the new methods of green travel. As a kind of zero pollution and zero emission transportation, Tesla electric vehicles are winning general favor in this aspect. However the electric vehicles have higher price than other vehicles of the same class, consumers are currently waiting aside. From the standpoint of view, if Tesla motors can improve battery performance and stability and also reduce its price to the largest extend, making it as affordable as possible, then it will take his sales to a next higher level. d stability and reduce its selling price as much as possible, then sales will likely be higher.

### 7.3.3 Shanghai Tesla Mega Factory

The establishment of the Shanghai Tesla Mega Factory has greatly reduced production costs. Since all of them are produced in China, Tesla has saved the original high tariff costs. Secondly, China's domestic cheap labor and advanced IoT systems have further reduced production and transportation costs.

Table 6. Price Difference Between Tesla Imported-to-China Version and Made-in-China Version

	Model 3-Performance	Model 3-LFP-type	Model Y
Imported to China Version	509,900RMB	439,900RMB	535,000RMB
Made in China Version	339,000RMB	266,700RMB	347,000RMB
Price difference	-170,000RMB	-173,200RMB	-188,000RMB

source: Qichezhijia (qichezhijia.com)

## 7.4 Threats

### 7.4.1 Limited target consumer

China has a large wealth gap, which means that money is mostly in the hands of the minorities, and as a high-end motor manufacturer, Tesla's target customers will be restricted. China's Gini coefficient was 38.5 in the year of 2020, which is higher than the international average. As a high-end sports car, Tesla's price is relatively high. Therefore, the people who can buy it must be a very wealthy part of the people. However, China's Gini coefficient is relatively high, and wealth is concentrated and controlled by a minority of people. The recognition and acceptance of Tesla vehicles by middle class and rich group of people is going to have a deciding influence to the success of Tesla vehicles in China. Right now, the recognition of Tesla's pure electric vehicles by Chinese high-end consumers is not very high and a lot of people generally do not perceive Tesla as a luxury brand like Mercedes Benz, BMW and Audi as Chinese like to label as BBA, and this is one of the reasons why Tesla is not doing too well in China. So, the brand image will play a big role.

### 7.4.2 Sino-US relationship

The policy of Sino-US relations and trade wars may change. Since 2018, the relationship between China and the United States has seen obvious turbulence. One of the most well-known is the "China-US trade war." Since the trade war, commercial exchanges between the two countries have been hindered to varying degrees. Moreover, the resulting trust between the two countries in each other has also been eroded, and the resulting distrust of American brands will also affect Tesla's sales in China.



SWOT Analysis			
S:	Zero emission, no pollution	Less maintenance costs	Cost of energy is lower
W:	Has not reached scale economy	Unstable performance of battery	Poor charging capacity
O:	Large market capacity in China	Residence awareness of environmental protection continues	Maga Factory reduced production cost
T:	Target customer relatively restricted	Sino-US relations and trade wars entail uncertainty for Tesla	

Table 7. Summary of SWOT Analysis

## 8. Conclusion and recommendations

### 8.1 Conclusion

This article analyzes the macro environment, meso environment and micro environment of Tesla's development in China's electric vehicle industry. The main conclusions are as follows:

From the perspective of the external environment, China's current economy is developing rapidly, residents' consumption capacity is relatively strong, electric vehicle consumption accounts for a relatively low proportion, the market capacity is

huge, and it is supported by the Shanghai local government. This provides a good external environment for Tesla cars.

From the perspective of the internal environment, Tesla Motors enjoys a fairly wide renown in China's auto industry for its outstanding R&D and marketing competence. As automobile industry continue to mature, the future will look more and more promising.

## **8.2 Recommendations to Tesla Motors China**

Based on the analysis, there are several suggestions proposed to Tesla, which intend to address the related concerns faced by Tesla at present.

The first recommendation is to develop charging network. As the analysis indicates that charging is one of the hindering factors. So in order to erase this concern, Tesla should set up a larger network of charging station, especially in downtown areas and along popular travel routes, so that people will feel more secure when they decide to purchase a Tesla vehicle.

Secondly, Tesla should further develop its battery performance, both on its stability and capacity. as a concern that costumers have right now with not only Tesla, but the whole NEV industry is the battery, so if the Tesla continue to make edge-cutting innovations in this field, especially if they can make the battery capable of supporting the car farther than an engine, then the Tesla vehicles will certainly be competitive. this will reduce the attractiveness of substitutes.

Thirdly, given that China's uneven wealth distribution, it is fair to suggest Tesla to release low-end vehicles in the future, the affordable vehicles will help take up more market share thus acquire more profit. At the same time, to build a better image, the company should establish a Public Relation department to help resolve online news as right now, Tesla claims that there is not any such department in charge of this. This has been largely criticized as the rumors and negatives news on social media often go viral and there are no specific department tackling them, resulting damages on Tesla brand image. At the same time, I suggest hiring celebrities with great reputation and credibility to endorse the vehicles, promoting the image and gain higher acceptance, especially in the competition of other luxurious brands.

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