Research on Tesla's Localization Strategy Development in China

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Abstract. Tesla Inc. has been continuously pushing the global automobile industry towards a more environmentally-friendly, smarter direction, the majority of the public believe that Tesla wanted new forces to help it fight against the traditional gasoline car manufacturers. And Tesla has shown its great localization strategy in China, there are multiple factors that contribute to its success, such as setting up the gigafactory in Shanghai, fully considering consumer demand, implementing successful market strategy and applying industry-leading technologies and safety. This research focused on Tesla Inc.'s history in China and the current market condition, intended to delve deep into Tesla's localization in the China market and offered a more comprehensive understanding about Tesla's market and localization strategy. Specifically, this paper explored how Tesla leverages its global influence to affect the China electric vehicle market and compared it with the current study in order to provide a more multi-dimensional perspective to understand the characteristics of Tesla in China, thus providing reference for the development electric vehicle market, and providing a strong base for future research.

Keywords: Localization Strategy; carbon credits; successful market strategy.

1. Introduction

Tesla Inc. founded in 2003, has been continuously pushing the global automobile industry towards a more environmentally-friendly, smarter direction. The founder of Tesla Inc, Elon Musk has led his team to revolutionize the rules of modern transportation through the invention of electric vehicles and autonomous driving technologies. Globally, Tesla not only offers the public a new type of transportation vehicle, but also encourages other car manufacturers to speed up electrification. The main method that is used by Tesla to stimulate the industry to grow is to open the patents, only keep certain vital ones. The publication of patents encouraged a great quantity of electric vehicle firms like BYD and NEO to start the plan of manufacturing electric vehicles. The purpose of Tesla is undeterminable, but the guess that was believed by the majority of the public was that Tesla wanted new forces to help it fight against the traditional gasoline car manufacturers.

On the other hand, in China, Tesla has shown its great localization strategy. For instance, it set up a gigafactory in Shanghai, China to accelerate the local production and enhance its research ability in China. Tesla successfully utilized the great consumer demand in the China market to gain a considerable amount of market share. From the Chinese people's perspective, Tesla is no longer a name for an electric car brand, but also a synonymous for revolution and high-quality. But actually for the consumer demand, India held almost the same consumer demand quantity. Why did Tesla choose to set its gigafactory in China instead of India? Public security and corruption has been a great issue for MNCs (Multinational Companies). Also the tax system and the law system are complicated which could be another discouragement for Tesla.

By enhancing our understanding of the significance of Tesla Inc., both globally and in China, we may have a better comprehension about how Tesla shaped the current automobile industry and how it will develop in the future. In the past few years, electric vehicles have been rapidly developed due to the government promotion of the industry through a series of policies and subsidies. Since Tesla entered the China market in 2013, it has become an inevitable part of China's electric vehicle market. It stood out in a growing market with its innovative technology and great brand influence. Additionally, China joined the Paris Agreement in 2016 and the support that was offered to Tesla can

be considered as a manifestation towards its commitment of environment protection. Furthermore, the Chinese government may have considered for itself as the crude oil self-sufficiency rate was relatively low (28.8% in 2022) [1].

This research will focus on Tesla Inc.'s history in China and the current market condition. Although there are currently many investigations being publicized that have analyzed the global strategy and market performance of Tesla, few of them have delved deep into Tesla's localization in the China market. This paper aims to fill the gap, and offer a more comprehensive understanding about Tesla's market and localization strategy.

Under this circumstance, this paper will be based on exploring how Tesla leverages its global influence to affect the China electric vehicle market and compare it with the current study in order to provide a more multi-dimensional perspective to understand the characteristics of Tesla in China, thus providing reference for the development electric vehicle market, and providing a strong base for future research.

2. Initiatives of Tesla in China

2.1. Carbon Credits

In China, carbon credit is a policy that is presented by the Chinese government which aims to reduce carbon emission into the atmosphere and to encourage the car manufacturers to produce more eco-friendly vehicles. This system allows firms to make profit by increasing their electric vehicle production and they can sell the credits to other car manufacturers. As a result, a positive environmental cycle is formed through this process.

The Chinese government has carried out the policy since 2017 [2]. Manufacturing a single unit of eco-friendly vehicles will provide a certain amount of carbon credit (Known as NEV which is New Energy Vehicle) to the supplier. The production of each traditional vehicle will cost the manufacturers a certain amount of carbon credit (CAFC Corporate Average Fuel Consumption) and that is the reason why many worldly-famous traditional car brands present electric vehicles or hybrid vehicles in China. There is a formula that is presented by the China government to calculate the carbon credit that can be created through manufacturing a new energy vehicle [3].

For pure electric passenger vehicles the formula is: $0.012 \times R + 0.8$.

For fuel cell passenger vehicles the formula is: $0.16 \times P$.

For plug-in hybrid passenger vehicles the credit is fixed at 2.

R represents the range of the vehicle measured in kilometers (km). P represents the rated power of the fuel cell system measured in kilowatts (kW).

The NEV credit can be traded and transformed into CAFC credit. The corporations will be charged a fine if the credit they have at the end of the year is negative. Many sports car brands were charged a fine in 2020, for instance, Ferrari and Maserati [4]. Therefore, they would have to purchase NEV credits from firms who have a positive credit, for example Tesla.

The legislation of the carbon credit can be traded in a free market allows Tesla to sell its vehicles at a relatively low price as selling the carbon credits can offer Tesla a great amount of income. In 2022 Q4, Tesla made a profit of 467 million dollar by selling the carbon credits which was a 49% increase when compared with the Q4 in 2021. From 2012 to 2021, the trading of carbon credits has provided an income of 5.34 billion dollars for Tesla Inc [5].

In the future, Tesla's market share in China has a high possibility to rise as recently the price of the vehicles has been decreasing from ¥355,800 to ¥259,900 from October 2019 to September 16, 2023 [6]. "Although Tesla has no obvious advantage in price when compared with its main competitor in China, BYD, the comprehensive performance was way better than ES8 produced by NIO which had the same price as Tesla. But the production capacity of Tesla caused the delivery period to be too long, the price of Model Y may decrease as the localization of Tesla in China and the problem of production capacity could be solved. Acting as the global leader of electric vehicles, Model Y is very

competitive among the B-segment cars" [7]. This quote was done in 2019, and nowadays the production capacity is higher than before with the gigafactory in Shanghai has expanded.

2.2. Gigafactory in Shanghai

Originally, when Tesla wanted to build a gigafactory, there were two options, one is Shanghai, China, the other one is India. But India had a lot of issues including corruption, social security. Many western firms entered the India market but then left the Indian market, for instance, Vodafone and General Motors, they both tried to enter the Indian market but neither of them succeeded. Tesla may be worried about facing the same problem as those companies had, therefore, it chose Shanghai to build its gigafactory. Moreover, during that period of time China presented a series of policies that could benefit the electric vehicle industries, for example the subsidies that were given to the electric vehicle industries [8]. But more importantly, Shanghai Municipal People's Government signed a so-called gambling agreement with Tesla in 2018. "In the agreement, the Shanghai Government will sell a piece of 860 thousand m^2 land to Tesla at a price of ¥980,000,000 which can be considered as 90% off. Also, Shanghai Government will offer a 4 billion CNY loan to Tesla with a very low annual interest rate which was 3.9%. On the other hand, from 2023, Tesla will have to pay a tax of 2.23 billion CNY every year. Meanwhile, Tesla will have to invest 14.08 billion CNY in the gigafactory in Shanghai over the next five years. At last all of Tesla's parts will have to be localized. If Tesla can not reach these requirements, the land has to be given back to the government" [9]. There are some people who may consider this agreement not benefiting Tesla or the agreement is risky. But during that period of time, the gigafactory in California was suffering from reaching its production capacity. Therefore, the offer made by the Shanghai government could solve the problem for Tesla. Also the low interest loan may be attractive to Tesla. The gigafactory was constructed in almost 1 year which was much faster than the other 2 gigafactory.

The gigafactory in Shanghai has the highest output in all Tesla's factories in 2022 [10], its production capacity reached over 750,000 units of Model Y. The gigafactory in Shanghai not only increases Tesla's output for cars, but also provides economies of scale and many other benefits. Additionally, the tariff can be avoided as the factory is built in China and the cars can be directly delivered to different cities in China which can also be considered as fulfillment for its environmental commitments as the pollution caused by transportation can be reduced. This action will make the price of Tesla lower and more attractive to Chinese consumers. Moreover, the branch of Tesla in China can then receive subsidies given by the government which could further lower the price. The brand image could also be enhanced due to the establishment of the factory, thereby, attracting more Chinese consumers.

2.3. Successful Market Strategy

Furthermore, the success of Tesla in the Chinese market was not only because of the sales of carbon credits, but also its successful market strategy. In 2008, Tesla presented its first electronic vehicle "Roadster", the price was approximately $100,000, and with the upgrades and customization the price may escalate quickly. Also the second car that Tesla presented was Model S whose price was approximately $70,000 in 2012. These two cars may be considered as 'luxury cars' from the general consumers' perspectives. Thus an image of luxury and high-end was built in the consumers' mind. This can be considered as skimming pricing as the following product that was presented by Tesla was cheaper and cheaper for example the Model Y is ¥ 259,900 in China which has a huge gap between the price of Roadster in 2012, but the high-end image is fixed in the consumers mind which can be considered as skimming pricing.

The decrease in price does not mean Tesla's product is cheap and low-quality. As we previously mentioned, the gigafactory is a utilization of economies of scale and some parts are interchangeable between different Tesla models. This action could help Tesla to simplify the production and cut cost of production. Furthermore, the settlement of Tesla's gigafactory in Shanghai could reduce tariffs and cut the transportation cost which could further lower the price and make the cars more affordable for

consumers, but even after all these price-cutting measures, the quality tends not to decrease as there are no cutting of corners in the car itself, instead cut has been cost in other production process. These measures can be concluded into penetration pricing.

The pricing strategy that was used by Tesla did not only consist of skimming pricing and penetration pricing, but also tiered pricing. Offering distinct models to cater to different segments. The price of the current models that are available on Tesla's website range from ¥828,800 Model S plaid to ¥259,900 Model 3 [11]. The price range encompasses the majority of the consumers. Understanding the purchasing power of the general public, Tesla chose the penetration pricing and the tiered pricing to stimulate the demand and expand the market. In order to further accommodate the diverse consumer demand, Tesla offers a flexible product bundle pricing strategy, allowing consumers to make their choices according to their demand and budget. For instance, the optional choice of Full Self-Driving (FSD) package in the Chinese market reaches up to ¥64,000. Through this kind of pricing strategy, Tesla is able to satisfy the actual need of the consumers and their financial capabilities, thereby stimulating sales. Moreover, the flexible pricing approach enables Tesla to cover a broader spectrum of consumers and satisfy the various consumer needs simultaneously.

2.4. Industry-leading Technologies and Safety

The competitiveness of Tesla in the electric vehicle market is not just due to its environmental friendliness and pricing strategies, but also its industry-leading technologies and safety. The unique battery technology that is employed by Tesla can be the cornerstone of its high quality. From the early stage of utilizing the 18650 Battery Cells into a more advanced 2170 Battery Cells and the most recently 4680 Battery cells, Tesla has always been in the forefront of battery innovation. The new battery structure that was introduced by Tesla, known as CTC (Cell to Chassis), may eliminate the concepts of battery modules and entire packs. The chassis will act as the upper and lower covers of the battery, integrating the battery and chassis into one. This new design was released on September 22, 2020, it can reduce the number of parts and the total weight of the battery pack [12]. According to Elon Musk, "There's no need to put a box inside another box." This technology will not only increase the cruising range, but also simplify the production process of the cars and lower the center of mass which could reduce the risk of vehicle rollover.

The security provided by Tesla can be attractive to Chinese consumers as there is a function that can not be replicated by the traditional petroleum cars which is the Sentry Mode. According to Tesla's official website, "When enabled, your vehicle's cameras and sensors (if equipped) remain powered on and ready to record suspicious activity around your vehicle when Model 3 is locked and in Park. Think of Sentry Mode as an intelligent vehicle security system that alerts you when it detects possible threats nearby. If a threat is detected, Sentry Mode pulses the headlights, sounds the alarm, and displays a message on the touchscreen indicating that the cameras may be recording to inform individuals outside of the vehicle. You will receive an alert on your phone through the mobile app and footage of the event is saved to USB drive (if installed)" [13]. Therefore, it offers a protection for the car owners' properties which could be attractive to Chinese consumers as the youth crime in China is a well-known issue (Some kids may entertain through scratching someone else's car) and certain places may lack of cameras. Under those circumstances, the Sentry Mode may be helpful for Chinese consumers. On the contrary, it may be hard for traditional petroleum cars to have this function as the car will only have the power when the engine starts.

3. Conclusion

During the exploration of Tesla's localization strategy development in China, it is evident that the company exhibited its advance ability in innovation and strategic contemplation in many aspects.

Firstly, Tesla leveraged the policy of Carbon credit that was presented by the China government in 2017 to foster a win-win situation of environmental protection and business profit by increasing

the production of electric vehicles. This policy not only encouraged Tesla to decrease its price in the China market, but also helped it make a remarkable profit by selling the carbon credits and creating a strong profit system for the company.

Secondly, the establishment of Tesla's gigafactory in Shanghai provided its commitment and resolve to deepen localization in China. The factory not only helps Tesla to increase its productivity and achieve economies of scale, but also assists Tesla to avoid tariffs and reduce the cost and pollution of transportation which could increase Tesla's competitiveness in the Chinese electric vehicle market and attractiveness to Chinese consumers. The agreement between Tesla and the Shanghai government played a vital role in ensuring the further investment of Tesla's gigafactory in Shanghai and the growth in China.

In the aspect of market strategy, Tesla managed to penetrate the mid-range market successfully through reducing the prices of its vehicles without compromising the qualities, holding ground against its main Chinese rivals (BYD and NIO). By employing different pricing strategies including the mixed pricing strategy, Tesla ensures that its products can cover the majority of the consumers and maintain its high-end image in the consumers' perspectives.

Moreover, Tesla secured its leading position in the Chinese electric vehicle market through the industry-leading battery technology and safety features that are attractive to Chinese consumers. Tesla's continuous innovation, for instance, the CTC technology and the Sentry mode, ensure its products' environmental friendliness, security and advancement.

In conclusion, Tesla's localization strategies have witnessed significant success in the Chinese market. By capitalizing on the China government's policies and systems, conduct well-thought market strategies and persistently innovates its technologies and security, Tesla ensures its leadership in the Chinese electric vehicle market. In the future, with the further expansion of Tesla's gigafactory in Shanghai and the increase in its productivity, Tesla's market share in the Chinese market is expected to increase consistently, laying a robust foundation for the company's dominant position in the global electric vehicle industry.

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