

Report on Assessment of the New-energy Vehicle Industry and Competition Environment

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Abstract

With the strengthening of people's awareness of ecological and environmental protection, the government is paying more and more attention to implementing energy conservation and emission reduction, adjusting energy structure and developing new energy sources. All these are beneficial to the sustainable development of the country and even the whole world. China is the largest country in automobile production and sales in the world. The energy consumption and environmental pollution caused by traditional fuel vehicles make China begin to explore the development road of new energy vehicles. This article aims to analyse the current situation of China's new energy vehicle industry and try to give the assessment of new-energy vehicle industry future attractiveness by mainly focusing on the analysis of the new energy vehicle industry driving forces, strategic group map and its key success factors.

Keywords

new-energy vehicle industry, sustainable development, driving forces, key success factors, strategic group maps.

1. Introduction

Since the reform and opening-up policy, the achievement of China's economy has amazed the world. During this process, traditional automobile industry has developed rapidly and no doubtfully brought a lot of convenience to people's life. However, on the other hand, it also leads to the problem of energy crisis and environmental pollution. In this context, more and more enterprises will look to the new energy automobile industry and to seek breakthrough and new development. This article aims to assess the new energy vehicles industry and its competitive environment. In order to achieve this goal, firstly, the article analyse the driving forces of change and its impact on the new energy vehicle industries. Then, using the strategic group mapping as a tool for comparing and figuring out the market positions of competitors in the industry. Thirdly, the article identifies the industry key success factors to argue the elements that affect industry participants' capacity to thrive in the marketplace. Finally, this article gives an assessment of whether the new energy vehicles industry offer rosy prospects for considerable profits or not as well as a conclusion to the whole report.

2. Driving Forces of Change in New-energy Vehicle Industry and its Impacts

Numerous changes and developments in the society are of great importance to the new-energy vehicle industry. The main drivers and competitive change of this industry are as follows:

2.1. The Requirement of Developing the Low Carbon Economy

Vigorous promotion of new energy vehicles is a requirement of global sustainable development, which is the general trend of the future transportation worldwide (Zuo, Li & Wang, 2019). Cars

are the main source of carbon emissions, and emissions of carbon dioxide and other gases contribute to global warming. As the carbon emission standards and fuel consumption indicators and regulations of various countries become stricter, it is imperative to get rid of dependence on oil, reduce carbon emissions, and to exploit new energy automobiles. Many countries in the world have formulated policies to support the development of electric vehicles as well as issued timetables for banning fuel vehicles (Yi & Xiang, 2009). For example, in February 2019, the British government announced that they will impose a ban on the sale of new gasoline and diesel vehicles starting in 2040, France either (Gibbs, 2017). At the same time, China is also actively studying a timetable for banning fuel vehicles, which will accelerate the progress achieved in the new energy vehicles and help increase the market share of this industry.

2.2. The Effect of 2020 Novel Coronavirus Pneumonia

In the year 2020, a highly infectious virus epidemic broke out globally. Almost governments around the world have shut down some factories and commercial activities as a precaution. From the perspective of logistics, during the outbreak of the virus, the delivery efficiency of express was decreased, which is not conducive to the development of e-commerce. And from the perspective of the supply chain, many plants were closed and several roads has been banned entering either, which might lead to the inventory out of store and throw a bad effect on the new-energy industries.

2.3. Advances in Electric Battery Technologies

In recent years, the progress of power batteries has been rapid. With the progress achieved in the area of technology and scientific as well as the scale of battery production gradually expanding, the cost of power batteries in China has fallen by 79% from 2010 to 2017. Also, five years ago, the range of electric vehicles was only 100 kilometres and now the range has been increased to 300 kilometres (Liu & Huang, 2019). The advances in technologies has made upsurge in buyer demand and thus help achieve a long-term growth rate of the industry because it made the prices of the new-energy vehicles lower. In 2009, the number of new-energy vehicles sold in China was less than 10,000. However, by the year end of 2018, the number of new-energy vehicles sold in China had reached 1.256 million (Forward Business Information Co., 2018), which might trigger a fierce competition between established firms and newcomers to grab the new sales leads.

2.4. Strong Support and Promotion of Government Policies

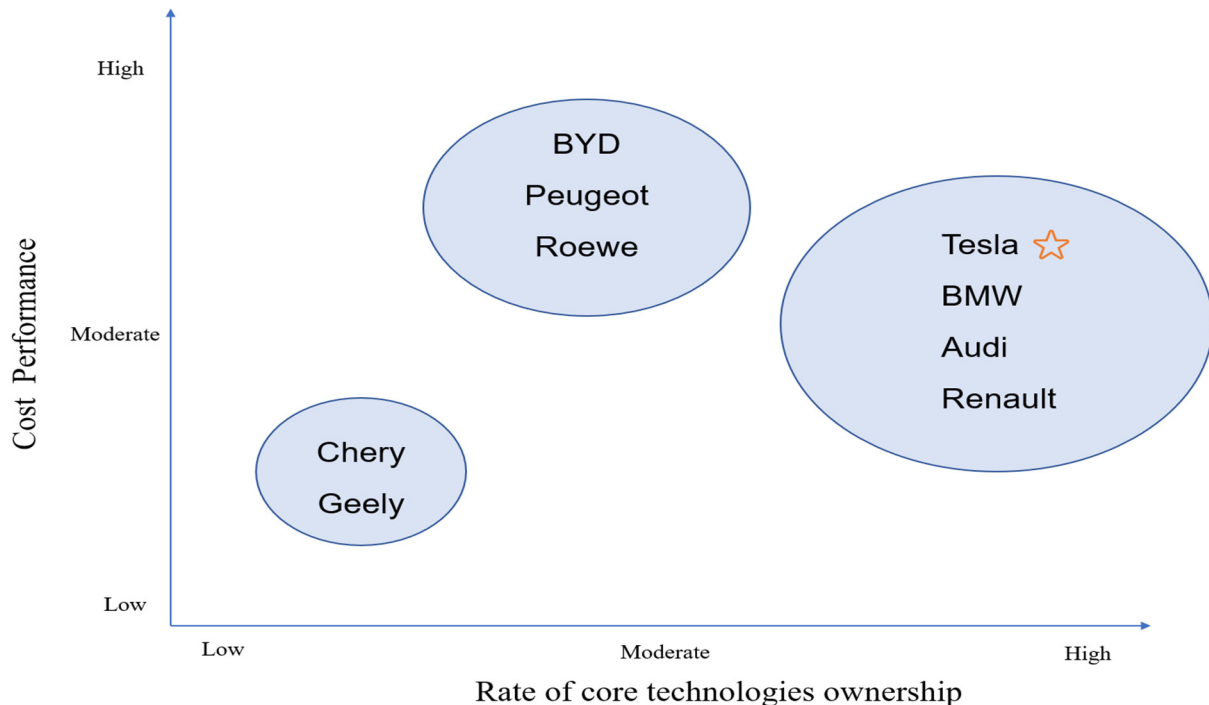
The Chinese government has continuously adjusted and improved the new energy vehicle subsidy policy since 2009 just for the sake of high-quality development of the new energy vehicle industry. However, with the rapid expansion of the new energy vehicle industry, the long-term implementation of subsidy policies has led some companies to always rely on subsidies and have low level of industrial competitiveness (Ji, Zhao, & Luo, 2019). Therefore, recently, the government asked companies to improve the quality of the product and has introduced some non-subsidy policies to increase the promotion of new energy vehicles and to avoid wasting public resources as well (Ministry of Finance of the People's Republic of China, 2019). For example, new energy vehicles are not limited to purchase and can get a car license plate quicker than fuel cars in some crowded city like Shanghai. These policies show that Chinese government persists in vigorously promoting new energy vehicles and help make it head for high-quality developments.

2.5. Changing Attitudes Towards New Energy Vehicles

As the consumer's awareness of environmental protection strengthened, actions have been taken to promote the adoption of clean energy vehicles and reduce carbon emissions. This will

bring benefits to the development of new energy automobile industry because of the new energy vehicle industry's development philosophy is in line with people's ideas and lifestyles.

3. Strategic Group Map of New-energy Vehicle Industry



Note: Circles are drawn roughly proportional to the size of the chains, based on revenues.

Fig 1. Rate of core technologies ownership

Based on the public data from China Automotive Industry Association, a simple strategic group map of comparative market positions of some representative companies in the new energy vehicles industry can be made.

3.1. Introduction to Each Strategic Group

This part will use strategic group mapping as a tool to reveal the market positions of new energy vehicles industry competitors. This article selects three representative strategic groups in Chinese new energy vehicle industry.

For Group 1, which contains Tesla, BMW, Audi and Renault, they share the similar competitive approaches that to provide customers with high-end and differentiate products and accelerate their technology research and development as well as increase the rate of ownership of core technologies as high as possible. However, due to the value of these brands are extremely high, those products of Group 1 are usually very expensive, therefore the cost performance for Group 1 is not that high. Due to the high brand premium, the amazing products and its big market shares, this group often get high revenues.

For Group 2, which contains BYD, Peugeot and Roewe, this group aims to offer products with high cost performance to customers and they might not obtain many core technologies, but they try to do. The revenues this group get is considerable.

For Group 3, which contains Chery and Geely, this group has low rate of core technologies ownership. Although they are usually not expensive, the quality of their products is not satisfying either. Therefore, the cost performance of this group is relatively low and the revenues they get are less than the first 2 groups.

3.2. Conclusions Drawn from Strategic Maps

As Gamble (2018) point out that, “generally, the closer strategic groups are to each other on the map, the stronger the cross-group competitive rivalry tends to be.” (p.56). From the map, it can be concluded that the competition between Group 1 and Group 2 is relatively fierce than other comparable groups and if Group 2 has mastered some vital technologies, they could be a big threat to Group 1.

What’s more, the map also indicates that not all positions on the map are equally attractive (Gamble, 2018), due to the fact that industry driving forces favour those strategic groups which try hard to improve their independent research and development capability and hurt others who rely much on the subsidies.

4. Key Success Factors in New-energy Vehicle Industry

According to Gamble (2018) “An industry’s key success factors are those competitive factors that most affect industry members ability to prosper in the marketplace.” (p.58). For new-energy vehicle industry, key success factors are as follows:

4.1. Skills-and-capability Related Ksfs

New energy vehicle industry pays more and more attention to the optimization of supply chain management. Take Tesla as an example, Tesla released its autonomy in the design and production of some insignificant components, especially some traditional components, and focuses mainly on the study and design of core components. Facts have proved that business outsourcing gives Tesla more energy to develop its own batteries and intelligent systems, so that both outsourcers and Tesla companies in the supply chain can benefit (Cui, 2018). In addition, Tesla firmly hold the O2O (online to offline) marketing mode. According to Chen (2019), through directly sales online, Tesla saves the cost of renting a store. However, the offline experience centre makes those potential customers satisfied and meets their desires to purchase cars. At the same time, by using the Internet marketing, Tesla could direct sell cars to customers without channel intermediaries, this enable Tesla to capture the requirements of its customers directly and provide them with customized service.

4.2. Technology-related KSFs

After the financial crisis in 2008, countries around the world increased their research on new energy vehicles and continuously explored the core technologies of new energy vehicles. With the expansion of the advances in battery technology, battery system costs will maintain a decline of approximately 10% to 20% per year by 2020. Public data show that cobalt, as an important raw material for power batteries, accounts for about 13% of the battery cost, which directly increases the price of power batteries. Many companies are trying hard to explore the possibility of using less or replacing cobalt. For example, the battery used by Tesla in its product Model 3 has significantly reduced the cobalt content and replace it by increasing the nickel content. This progress reduces the cost of new energy vehicle batteries further. Many experts believe that the improvement in production processes is very vital to for higher efficiency of manufacturing and lower costs of production and can lead the industry into a bright future.

4.3. Supporting Facilities Related Ksfs

The complementary product of new energy vehicles—the charging pile, has also been planned to be widespread used and optimized over time. These initiatives will meet customer’s requirements and provide convenience for customers to charge at anytime and anywhere (Ji, Zhao, & Luo, 2019). The construction of charging stations and the innovation of key technologies should be gradually improved, since in the long run, only the perfection of

supporting equipment and excellent technology can maintain the long-lasting demand (Qi, 2013).

4.4. Manufacturing-related KSFs

From the cost perspective, with the continuous development of the power battery technology and the economies of scale, battery prices continue to decline. At the same time, market potential is continuously being stimulated, volume advantages are gradually emerging, and the new energy industry will usher in a greater development.

4.5. Marketing-related KSFs

When it comes to marketing, customized services and attractive advertisement have been used. For example, recently, many companies like Chery has provided personalized information services for customers. Also, it has set up a centre for customers to experience the new-energy products and communicate the skills when driving the car. What's more, the clever advertising contributes a lot. Through advertisements, customers are deeply attracted by Tesla's unique concept, design style as well as intelligent configuration and intelligent system that can be upgraded and iterated. These marketing methods will no doubtfully increase the customer perceived value of new-energy industry and let them be more willing to choose a new-energy vehicle.

5. Assessment of New-energy Vehicle Industry Future Attractiveness

Based on the analysis of driving forces of change, the strategic group map and the key success factors, the following conclusions can be drawn:

In today's world, where the world is short of oil resources and the pollution is severe, the growth potential of the new energy vehicle industry is huge in the context of countries are all trying hard to maintain their own energy security and follow the concept of sustainable development.

As for industry profitability, the profits of the new energy industry are still not optimistic in the short term because the those subsidies from the Chinese government for the new energy industry have decreased gradually in order to improve the competitiveness of this industry (otherwise those small companies will rely on subsidies and not have the motivation to achieve its goal). What's more, this industry hasn't realized economies of scale currently and the cost of producing new energy vehicles is still high. That is to say those powerful competitive forces doesn't make the profitability of the industry below the average levels and there is still a long way to go and quantities difficulties to conquer. Yet, as time flies and with the development of technology and the advances in supply chain management, the improvement of supporting facilities and the formation of economies of scale, the profitability of the industry will be favourable in the long run.

All in all, *the new energy industry offers good prospects for profitability and is fundamentally attractive and presents good opportunities*. However, it is never correct to say the industry is equally attractive or unattractive to all the participants. Only when a company be sensitive to the changes of the environment and invest aggressively to capture those opportunities at the right time can the company be at a favourable position in the new energy vehicles industry (Gamble, 2018).

6. Conclusion

To sum up, new energy vehicle industry is the direction for the development of China or even the world's car industries in the context of developing a low-carbon economy (Zuo, Li & Wang, 2019). It requires the companies in the industry to accelerate the speed of research and

development of core technologies to lower the cost of production. Companies in this industry should try hard to perform the key success factors competently to achieve competitive success. All in all, the new energy industry is fundamentally attractive and provides good opportunities and a bright future, companies in this industry should make excellent products and invest aggressively to grasp the opportunities they see.

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