Analysis on the Competitiveness of Tesla Development Mode and Its Enlightenment to the Development of Chinese Electric Vehicle Industry

Shu YANG* and Cai LIANG

Energy Research Institute of State Grid, Beiqijia, Changping District, Beijing 102209, PR China

Keywords: Tesla, Innovation, Competitiveness, Chinese Electric Vehicle Industry.

Abstract. This paper analyses the development mode of Tesla from four dimensions, which are technological innovation, marketing innovation, service innovation and financing innovation. And it explores the core competitiveness of Tesla. On the basis of the research of Tesla’s development mode and key factors of success, this paper raises policy implications for Chinese electric vehicle industry from four aspects, i.e. focus on building domestic electric car brand, making breakthrough in core technology, strengthening the whole industry chain integration innovation, accelerating the construction of electric vehicle infrastructure network and drawing the development strategy of electric vehicles.

Introduction

Since the introduction of Roadster in 2006, Tesla has quickly seized the global high-end electric vehicle market, achieved the expansion of the low-end market, and successfully shaped a good brand image, making the electric car really into the streets. It is a major breakthrough which many car enterprises attempted to complete but failed to do. The core competitiveness of Tesla is particularly reflected in its full industry chain technology integration and all-round business mode innovation. Additionally, Tesla has publicly released its development strategy in July 2016, showing us the long-term strategy and plan for its development [1]. Analysis on Tesla core competitiveness elements has a greater reference value for the development of Chinese electric vehicle industry.

The Development Mode of Tesla

The key element of Tesla's success is the innovation of all-round business mode based on subversive technological innovation [2,3].

Technological Innovation Mode

Master the core technology of the leading electric vehicle through the subversive innovation. Tesla's core technology is the lithium cobalt oxide series lithium battery and its management system (BMS). The battery unit weight ratio is higher than any other sections of the battery in market, its mileage reaching the level of gasoline vehicles (such as Mode S can reach 483KM). It supports three charging modes: home charging, portable convenience charger and high-voltage charging. It has more flexible charging methods and more efficient and time-saving (high-voltage charging 30 minutes can reach 240km of electricity).

Achieve comprehensive and integrated applications of the industry chain of the first-class technical resources through technology integration. Tesla fully applies multi-level first-class technology based on its own core technology, enhances vehicle performance and user experience through integration. Such as body design and Lotus car, Daimler Benz, Toyota cooperation; cooperation of lithium battery with Panasonic; charging device outsourced to Solar City company; cooperation of intelligent system with Google. Through the integration of these applications, Tesla's products become a variety of great integration of boutique [4].

The Innovation of Marketing Mode

Tesla accurately grasps the main consumer characteristics at the beginning of the transition from the
traditional car to the new energy vehicles; locates its consumers as the rich people who have a strong sense of environmental protection, keen on new technologies economic strength. Based on these high-end consumer characteristics, Roadster, with fastest 100 km acceleration and excellent design, won a large number of customers who are on the top of the global wealth list. One the basis of the great success in the high-end market, Tesla gradually expands to the middle and low-end market, and launches popular vehicles with mass production and sales, such as sedan Mode S, which brings a huge sales and turnover.

Take integration application of the new marketing methods under Internet economy integrative, fully use direct online and offline marketing, customized marketing and word of mouth marketing, enhance market influence. Direct online and offline marketing: to subvert the traditional car O2O marketing mode, follow the Apple direct sales mode, set up direct sales stores to attract more potential consumers, reduce the cost of circulation. Customized marketing: to achieve predictive production in a customized way, to reduce the backlog of goods and market risks, decrease cash flow pressure. Word of mouth marketing: to take the rich as the main market at the beginning, so mainly to provide users with superior technology, fashion, environmental experience and perception, to promote the experiencing customers a variety of ways to share, and form a good reputation effect [5].

The Innovation Service Mode
Provide users with the whole process of intimate and extreme service. Give customers all aspects of high quality services from buying, warranty and value-added., to dispel all consumers’ concerns. Sales service: products taking direct sales mode, not only store sales, but also online purchase. The stores provide customers with explanation, sales, maintenance, product exhibition, test drive experience and other services. After-sales service: to provide users with 8 years of free battery maintenance and replacement services, to establish their own free charging network (currently in the whole United States), to introduce rapid battery replacement technology (90 seconds to complete the replacement), to set 50% of the minimum battery value rate, to eliminate consumer’s concerns completely. Value-added services: to configure vehicle control display, dock car network, to achieve remote control through the smart phone APP, to provide users with rich and convenient digital value-added services.

The Innovation of Financing Mode
R & D and market promotion of high-tech products require a great deal of continuous investment. Tesla use multi-channel financing to support high demand. Increasing venture capital: the founder Alan Musk after the initial investment, increased capital injection many times when the company appeared in the capital crisis. Attracting venture capital: attracted Silicon Valley personal venture capital $40 Million. Obtaining government support: in addition to making full use of the government subsidy policy, received a low-interest loan of $ 465 million from the US federal government, accessed to Canada’s "zero emissions" subsidy and California tax relief and incentive funds totaling $68 million. Selling carbon emissions: revenue from sales of carbon credits. Listing financing: listed on the Nasdaq in 2010, financing amounted to 226 million dollars. Accessing to technology investment: obtain investment through technical cooperation and trading, such as obtaining 50 million dollars of investment by selling batteries to Daimler and helping its R & D, and obtaining another 50 million dollars of investment by cooperating with Toyota. Custom prepayment: developed funds through custom marketing mode. Customers need $ 5,000 deposit for a Mode S.

Analysis on the Competitiveness of Tesla Development Mode
By analyzing the Tesla development mode, its core competencies are as follows:
Product Competitiveness Based on Core Technology

Tesla produces automotive products with excellent technical performance and has been caught up with and surpassed the same traditional car based on its battery and other core technology and integration of the world's top automotive manufacturers’ core technology. Such as Mode S P85D and P90D launched in 2015 controlled 100 km acceleration time within 3.5s, speed up to 250km / h, the maximum mileage exceeding 500km. The vehicle performance has been approaching or even beyond the same type of traditional oil vehicles in the luxury modes; the performance of Mode 3 launched in 2016 has totally beyond BMW Mercedes-Benz and other equivalent price modes.

Market Competitiveness Based on the Comprehensive Advantages

With its leading technology, high-performance products, the ultimate service experience, innovative marketing mode and other comprehensive advantages, Tesla has won the market's full trust and accessed to a strong market competitiveness. The annual revenue in 2015 is $5.29 billion, with an increase of 47%. Up to now, there have a total of 107,000 Tesla vehicles in 42 countries and regions around the world, and a total mileage of nearly 2 billion miles (about 3.2 billion kilometers). In 2015, the sales of main luxury car declined, however Tesla in the United States is champion.

Competitiveness of Business Modes Based on Resource Integration Applications

The core of Tesla's business mode is its integration of the entire industry chain resources and capabilities, as well as the ultimate service of the entire process. The ability of the whole industry chain technology integration: with its core battery and management system technology, enhance its vehicle design and manufacturing level through mergers and acquisitions, strategic alliance and other forms of integration of global automotive industry chain resources, and fully integrate Internet enterprise technology to make the vehicle equipped with the most advanced digital equipment. The capabilities of the whole process service: to provide users the high quality service during the whole life cycle from the car sales to the recovery.

Marketing Competitiveness Cased on Market Segmentation

"High-end start" market positioning effectively reduced the intensity of market competition. Tesla chooses the wealthy class who are not sensitive with price, adopt dislocation competition strategy, effectively avoid the advantages of competitors, finally open the market for it. Experiential marketing is fully trusted by the market. Using the store mode through the experience and network sales, win market loyalty. Comprehensively use brand marketing, star effect, word of mouth publicity, combining online and offline marketing, etc., to promote brand communication.

Enlightenment on the Development of Chinese Electric Vehicle Industry

The main enlightenment from Tesla's development mode to the development of Chinese electric car industry is: to build domestic electric car brand image, strengthen the core technology research and development, fully integrated application of industrial chain-related advantageous resources, strengthen technology integration and service integration, to achieve electric car industry bigger stronger and better [6].

Focus on Building Domestic Electric Car Brand

The development of domestic cars mostly relies on the early accumulation of capital. That is, starting from the low-end low-cost modes, and then seek to transition to the middle end. This development path led to the bottleneck of brand image conversion for the current domestic car manufacturers, although won the short-term development, but it is very unfavorable for the development of the enterprise in the long run. The development path of Tesla is worth domestic electric car manufacturers learning which starts from high-end, and gradually spread to the middle and low-end market. Electric vehicles as high-tech products, follow the general rules of innovation diffusion. The early consumers are mainly keen on new technologies or more wealthy people.
Based on the strategic thinking of establishing a good brand, combined with the characteristics of early consumers, more attention should be paid.

**Making Breakthrough in core Technology, Strengthening the Whole Industry Chain Integration Innovation**

The core of electric vehicle technology lies in the battery, motor and electronic control technology. On the level of China's electric vehicle-related technology, on the one hand a number of core technologies have not yet achieved independent research and development, must rely on the import of core components. On the other hand, the product integrated innovation level is limited, the overall function and design is still to be improved. Resources integration brings a huge integration effect for the Masco companies. The capability of integration is precisely the most lacking part in the process of Chinese enterprises innovation. Domestic electric car manufacturers should strengthen the core technology capacity building, rely on the core technology, in science and technology research and development, manufacturing, market and other fields, through a wide range forms of comprehensive application of resources to enhance the overall competitiveness.

**Accelerating the Construction of Electric Vehicle Infrastructure Network**

Convenient charging service is an important factor in the successful promotion of Tesla. However, the relationship between charging infrastructure and new energy vehicles has been the biggest problem during the process of the new energy vehicles promotion in China. There are a large quantity of main piles of charging in current construction and operation which are lack of unified planning and standards. Drawing lessons from Tesla, the related domestics charging infrastructure construction parties can take the form of co-financing to establish a unified new energy vehicle charging network company, which sets charging network planning, construction, operation, management and maintenance in one. This will not only highly enhance the efficiency of resource allocation and improve the operation and management standardization, but also promote the unified standard of charging infrastructure interface, greatly enhance the user's charging experience, and contributes to promoting the new energy vehicles in a large area in our country.

**Drawing the Development Strategy of Electric Vehicles**

Tesla announced on July 20th, 2016, the development strategy and specific plans. It is suggested that China's electric vehicle enterprises, combining the current situation of China's electric vehicle industry and the development trend of social technology, accelerate the innovation and research of the development of the automotive industry's long-term strategy and speed up China's electric vehicles occupying the new commanding heights in the future, which is based on the blueprint of Tesla's development from electric vehicle manufacturing to entering energy storage, expanding the market segment, realizing automatic driving and innovating sharing mode.

**References**


