Proceedings of the 2nd International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/57/20230745

Taking BYD as an Example to Analyze New Energy Vehicles

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Abstract: With the development of the times, the environmental problems brought by fuel powered vehicles have gradually attracted people's attention, and new energy vehicles have also received increasing social attention. People seem to attach more importance to and want to understand new energy vehicles, and the technology and marketing strategies of new energy vehicles have gradually become more mature. This article will take BYD Automobile as an example to analyze and propose some suggestions for the sales strategy and supply chain management of new energy vehicles. The full text study found that both BYD and other new energy vehicle brands have their own methods to attract customers for consumption, and the sales of new energy vehicles are also getting better with the attention of society. The research significance of this article lies in identifying some problems encountered in the development of new energy vehicles and proposing solutions, as well as expectations for the future of new energy vehicles.

Keywords: BYD, new energy vehicles, fuel vehicles, electric cars

1. Introduction

The choice between fuel powered vehicles and new energy vehicles has gradually become a hot topic of discussion among people, with more and more people choosing new energy vehicles due to their concern for the environment and increasing oil prices. China has actively promoted the creation of new energy in recent years. Development Plan for the New Energy Vehicle Industry (2021-2035) made the point that new energy vehicles must be vigorously developed if China is to successfully transition from a major automotive nation to an automotive powerhouse. China's automotive sales surpassed 25 million units in 2020, according to figures from the Ministry of Industry and Information Technology, placing it first in the world in terms of overall sales. Sales of new energy cars alone among them surpassed 1.36 million units. This is primarily because the nation began experimenting with new energy subsidy policies after 2010. The domestic new energy vehicle sector has made great progress at this point thanks to regulatory incentives. Although the intensity of policy subsidies has lessened, new energy vehicle sales are still growing overall [1].

2. The Current Situation of New Energy Vehicles

2.1. Current Sales Volume of New Energy Vehicles

New energy vehicles sold 333100 units in 2015, which was a stage before the new energy vehicle industry had officially taken off. However, in 2018, against the backdrop of the country's emphasis

DOI: 10.54254/2754-1169/57/20230745

on sustainable green development, the new energy vehicle industry ushered in its own era, with sales increasing to 1256200 units. From 2015 to 2018, with sales of 24.5976 million and 28.0606 million vehicles in China, the proportion of people purchasing new energy vehicles has rapidly increased from 1.3% to 4.4%, indicating the beginning of the new energy vehicle industry. The Chinese government recognized a brighter future for the new energy vehicle sector and created a better social environment for it with the launch of the "New Energy Vehicle Industry Development Plan (2021-2035)" on November 2, 2020. This plan is extremely detailed and systematically outlines support measures for the future of the new energy vehicle industry, from expectations for the industry's future to specific measures to be taken for its development to security measures for its implementers, ensuring people's enthusiasm for supporting the industry's growth. According to the Technology Roadmap for Energy Saving and New Energy Vehicles released in October 2020, it is anticipated that by 2030, China will have one million fuel cell vehicles on the road and more than 1000 hydrogen fueling stations, ensuring the growth of the new energy sector and the ancillary energy supply industry [2].

Overall, analyzing electric vehicle is of great help to the automotive industry and society. Vigorously developing energy-saving new energy vehicles is a valid way to solve energy and environmental problems, and also a powerful method to achieve national ecological civilization construction. The energy efficiency of new energy vehicles is higher than that of gasoline vehicles, which can break free from dependence on oil and is a strategic measure to ensure the energy security of the Earth. Developing new energy vehicles is the best choice for new economic growth points and new industries in the era of the financial crisis. The purpose of the text is to more clearly identify some of the business decisions and related management adopted by BYD as a leader in new energy vehicles. The following content will describe the differences between new energy vehicles and fuel vehicles, and then use BYD as an example to analyze sales strategies and supply chain management. Then, compare the sales methods and sales of BYD and Tesla to more intuitively compare the two brands. Finally, explain the problems faced by the new energy vehicle industry and propose some solutions to these problems.

2.2. Comparative Analysis of New Energy Vehicles and Fuel Vehicles

To compare Fuel vehicles and Alternative fuel vehicle,《Data magazine》 interviewed 1930 car owners to get opinions about them. Although the production and sales of electric vehicles have been steadily increasing in China over the past few years, many respondents are still leaning toward buying hybrid power vehicles or gasoline-powered vehicles, accounting for 43.01% and 32.26% of respondents respectively; only about a quarter of the interviewees made the decision to buy an electric vehicle without hesitation. Fuel-powered vehicles perform better in terms of safety, and many customers favor them. They hold that view. Fuel-powered cars are more economical (which accounts for 30% of the total) and more selective (which accounts for 30% of the total). Since the necessary infrastructure is more comprehensive [3]. This indicates that people nowadays still prefer fuel powered cars.

2.3. The Reasons Why People Choose to Purchase Different Types of Cars

There are different reasons to lead people do not buy electric vehicles. First, the technology of fuel powered vehicles is more mature compared to electric vehicles. Even the top of the line electric vehicle, Tesla, had 55 accidents caused by loss of control worldwide in 2020. Among them, 9 people died and 50 were injured. Secondly, refueling for fuel powered vehicles is very easy, and most places have gas stations and the range of refueling once is also very long. In contrast, the charging time of electric vehicles is longer and there are fewer public Charging stations, so you may encounter the

DOI: 10.54254/2754-1169/57/20230745

situation of charging queue when going out. Moreover, electric vehicles are greatly affected by the environment. For example, during winter, the range of electric vehicles will decrease.

Although people generally like gasoline powered cars nowadays, they still have some problems. For example, Chinese motor vehicles (including cars, tricycles, trucks, motorbikes, etc.) released 15.577 million tons of a total of four pollutants in 2021. They emit 7.683 million tons of carbon monoxide, 20.04 million tons of hydrocarbons, 5.821 million tons of nitrogen oxides, and 69000 tons of particulate matter, respectively. Over 90% of CO, HC, NOx, and PM emissions are generated by fuel-powered vehicles, which also account for the majority of other pollutant emissions. Among them, diesel vehicles' NOx emissions exceed 80% of all vehicle emissions, and their PM emissions exceed 90%. Gasoline vehicles account for over 80 percent of all vehicle emissions, and their HC emissions exceed 70%.

3. Taking BYD as an Example for Analysis

3.1. Analysis of New Energy Sales Strategy Based on BYD

Take BYD as an example. BYD's marketing strategies are expanding along with the information age's constant advancement. Advertising in print publications, on TV networks, and on highway billboards is essential for Old Media. Leonardo Cardiprio was chosen as the spokesperson for its new energy cars with environmental preservation as the foundation, which quickly increased its popularity and market acceptability. In terms of online publicity, BYD promotes new energy vehicles on all significant video platforms, online soft pieces, and short-form video platforms like digital marketing, which can help it reach more potential clients. In the car business, supporting a variety performances as part of an advertising campaign has become customary. By providing automobiles for programs, merging billboards, celebrity oral broadcasts, and other forms, BYD Tang has established a new method of auto advertising. In order to promote the independence, relaxation, and eco-friendly attributes of its new energy cars in a novel method, BYD Tang made a live appearance as a prop in a variety show in 2016[4]. As demonstrated by Chengdu's usage of over 100 BYD Tang as power supply equipment to consume hot pot, this promotion has evolved into a new mode of transportation for internet celebrities among young people who are open to novelty. Through the inclusion of Chinese design elements in car models and dynasty series names, the program that sponsors "Classic Chanting and Spreading" promotes Chinese culture. It demonstrates trust in the nation and greatly improves its business image and social recognition by embracing Chinese culture [4].

3.2. Analysis of Supply Chain Management Based on BYD

One of the best examples of the entire industrial chain structure among producers of new energy vehicles is BYD. It has completed the industrial chain's whole integration and reached self-sufficiency in the production of new energy cars' three electric systems, parts, and vehicles themselves. Even the recycling of batteries has a plan. This vertical integration approach secures the supply chain for its new energy vehicle manufacturing throughout, as well as the management of part costs, greatly reducing the cost of new energy vehicle production and giving them a more pronounced competitive advantage in pricing. This model can also help BYD integrate innovation more quickly, meet user needs for new energy vehicles in terms of technology, scenarios, etc, outperform rivals, maintain leadership in new energy vehicle technology, and improve market development opportunities and organizational competitiveness. BYD has been concentrating on the global layout, laying out production bases in Europe, Japan, South Korea, and other locations, and carrying out raw material procurement, product manufacture, and product sales nearby, which has substantially reduced production costs. It has essentially developed a global business strategy based on "global running, global manufacturing, and global employment" at the same time. BYD helps the California Group's

DOI: 10.54254/2754-1169/57/20230745

American clients by providing official automobiles, which helps the company promote its new energy business internationally [4]. Additionally, BYD's diversified strategic plan has gradually been put into action. For instance, the company has partnered with Vanke Group on the new "orbit+property" model and with the Launch Vehicle Technology Research Institute on projects involving components, new energy vehicles, cloud orbit, commercial aerospace, etc. They were able to implement resource integration and propel the growth of the new energy industry thanks to their collaboration with Baidu Apollo and DaDao Vehicle on the development of autonomous driving technology.

4. Comparative Analysis of Tesla and BYD

4.1. Comparison of Operational Strategies

However, Tesla is different from other traditional manufacturers in that it follows the direct sales model of "official website e-commerce+physical experience center" instead of depending on exports. A sort of franchising business known as the "direct sales model" places service and experience centers in the target market. These locations are run directly by the corporate office and offer "one-stop" services to customers, including ordering delivery, and after-sales support. This model has several benefits, which are primarily expressed in three ways: first, pricing is openly and transparently unified for both online and offline transactions; second, customers may enjoy professional and standard services without feeling compelled to purchase; and third, the purchasing procedure is straightforward, disregarding the profit differential that middlemen receive; The third is that customers have more options and can privately personalize it. Right now, Tesla has 378 direct stores and showrooms across the globe, with 144 in the US, 52 in China, 141 in Europe, and 231 service centers—89 in the US, 37 in China, and 75 in Europe—established. In China, Tesla has direct storefronts and exhibition halls in 13 provinces and cities, including Beijing, Shanghai, Guangzhou, and Shenzhen. All of these locations are situated inside the central business district of each city. Nine provinces and cities—including Sichuan, Shanghai, Guangdong, and Jiangsu—are home to service centers. BYD uses a direct export strategy, which is associated with the first phase of breaking into foreign markets and typically refers to. Since 2013, BYD has received numerous bids for orders for all-electric buses from nations like the United States, Chile, and Brazil, primarily through the export of goods [5].

4.2. Similarities and Differences Between BYD and Tesla

The similarities between the two are primarily seen in, (1) the product matrix, which includes both passenger and commercial vehicles; (2) the target market, which includes Europe, the Americas, and the Asia Pacific region; and (3) the entry mode, which includes investments in the construction of factories. The distinction is made due to (1) Different product positioning and focus for both passenger and commercial vehicles: BYD enters the worldwide market with commercial vehicles, Tesla concentrates on selling passenger cars, and most passenger cars are sold domestically. While doing so, BYD's products are primarily positioned in the mid-to low-end segments, and Tesla's products are primarily positioned in the mid-to-high-end segments, gradually expanding to the Volkswagen series in recent years. (2) The two companies have distinct entry tactics with regard to geography: BYD emphasizes entry into developed countries by adopting an "easy first, then difficult" entry approach, whereas Tesla concentrates initially locally before expanding to Europe and the Asia Pacific region. (3) The two have different entry strategies: BYD mostly uses two strategies—export and strategic alliance—while Tesla primarily uses a franchise model to drive product marketing through direct sales, with the exception of joint investment and factory development [5].

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4.3. Comparison of Sales of New Energy Vehicles

Domestic electic cars have demonstrated a tendency of rapid development over the past ten years, as can be seen from the statistics table of domestic new energy vehicle production and sales from 2011 to 2019. The number of automobiles produced and sold increased steadily from 2011 to 2018, reaching their high at the same time and surpassing one million for the first time in 2018. The production and sales of new energy cars did, however, marginally dip in 2019, displaying negative growth for the first time, as a result of the ongoing reduction in national subsidies for such vehicles. The production and sales of new energy vehicles in the first four months of China were 205000, down 44.8% and 43.4% year over year, respectively, since 2020 as a result of the novel coronavirus's effects [6]. From the analysis of BYD's Financial statement analysis, we can see that BYD achieved good results in 2016 because the business first entered the market for alternative energy vehicles in 2016. Due to a decrease in national subsidies for new energy vehicles, BYD's overall performance in 2019 was bad. However, in the second half of 2019, due to the pandemic, BYD's production and sales both continued to decline. However, in 2020, as the epidemic was brought under control, the overall economic situation improved, BYD achieved significant growth in production and sales, and all indicators also performed well [7]. Moreover, from January to December 2022, BYD Auto sold 1868543 cars, with a year-on-year growth of 152.5%. In December 2022, sales of 235197 vehicles increased by 137.3% year-on-year, marking the fourth consecutive month since September of this year when BYD's sales exceeded the 200000 mark. Throughout 2022, BYD sold 1862428 passenger cars, an increase of 155.1% year-on-year. Among them, the DM model sold a total of 946239 vehicles throughout the year, while the EV model sold a total of 911140 vehicles throughout the year. The two major technologies of ultra hybrid and pure electric are advancing together. And on January 3rd, Tesla released its 2022 global production and delivery report. In 2022, Tesla will deliver 1.31 million vehicles worldwide, an increase of 40% compared with 2021, and produce 1.37 million vehicles, an increase of about 47% year on year, ranking the first in the world in terms of sales of Battery electric vehicles. According to data, the delivery volume of Shanghai factories from January to November 2022 has exceeded 650000 units. Throughout 2022, Chinese factories contributed more than half of Tesla's production and sales.

5. Problems and Countermeasures for New Energy Vehicles

5.1. Problem Challenges

The new energy market is still beset with numerous issues, though. China is now home to a small number of new energy vehicle manufacturers with a relatively small production volume. The production scale is limited, which causes the price of new energy vehicles to fluctuate significantly. Buyers' purchasing awareness will be impacted once there is a large price fluctuation. Customers are hesitant to embrace alternatives for a variety of reasons, which has a significant impact on the market promotion of new energy vehicles. These factors include restricted production capacity, an inadequate variety of new energy car classifications, and a lack of consumer choice.

Four ministries—the Ministry of Finance, the Ministry of Industry and Information Technology, the Ministry of Science and Technology, and the Development and Reform Commission—joined forces to issue a notice in April 2020 on how to improve the financial subsidy policy for the promotion and use of new energy vehicles. The notice demanded that the subsidy standards for 2020–2022, as compared to the previous year, be reduced by 10%, 20%, and 30%, respectively. The new energy vehicle subsidy standard will decrease from 2021 to 2022 by 30% [8]. Secondly, the prices of new energy vehicles are generally high due to costs, especially battery costs, which makes some consumers unwilling to purchase new energy vehicles. In terms of insurance costs, new energy cars

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include expensive power batteries that are vulnerable to damage in the event of accidents, leading to significant maintenance expenses and vehicle scrapping. Due to the higher risk from the insurance companies standpoint compared to regular fuel vehicles, automobile owners must pay more for insurance [8].

Due to early vehicle technology being out of date and poor quality, early new energy vehicles generally go unnoticed by consumers, contributing to the low-value preservation rate of used cars. At the same time, new energy vehicle technology updates and iterates quickly, making new products more appealing to consumers. Additionally, unlike traditional fuel vehicles, power batteries have a longer lifespan. All of these factors have reduced the interest in used automobiles among consumers and used car dealers, which in turn lowers the resale value of used cars. The safety of new energy cars, as a relatively new product, is hotly debated, particularly in media stories that reinforce popular opinion, particularly in fire catastrophes. The primary source of ignition in fire incidents is the power battery of modern energy vehicles. It is simple to create internal and exterior short circuits, which produce heat, in power batteries when overcharging, mechanical abuse, high-temperature thermal shock, or product quality faults are present. When the temperature reaches the thermal runaway threshold, the SEI layer breaks down, which causes the electrolyte to break down and result in internal short circuits. A fire results from electrolyte igniting and burning [8].

5.2. Countermeasures and Suggestions

BYD is the first company in China to be granted a license for new energy vehicles. The sales philosophy of new energy cars must create new sales methods based on their unique qualities in addition to adhering to the basic sales principles of autos. The target client group must be precisely positioned depending on the level of demand for various ages at the outset of developing sales strategies. On the basis of general convergence, there are also some distinctions in the target client group for various configurations of a series in car manufacturers. Clarifying the target market is necessary for BYD New Energy Vehicles before creating relevant promotion strategies based on the features of the product [9].

Lead-acid batteries, lithium batteries, and hydrogen fuel cells are the major types of power batteries used in new energy vehicles. The main technical indicator for it is energy density. Lead-acid battery development is slow, and much of China's battery research is based on already-developed technologies without making any significant advances. This hinders the development of fuel cells' primary material technology. Early on in the creation of new energy cars, businesses neglected the caliber and security of automotive items in favor of growing industrial scale and quantity. The core technology for new energy vehicles has been mastered by developed nations including the United States, Japan, South Korea, and Europe, which also place a high priority on the advancement of this technology. Maintaining China's market position merely on the basis of sales is challenging. The development of new energy cars is typically supported by China's charging infrastructure, but it is still less developed than anticipated under the "one vehicle, one project" strategy, with a significant regional gap [10].

Technology has emerged as a key driver in achieving this process as China's new energy vehicle industry continues to shift from being policy-driven to being market-driven. The new energy vehicle sector should raise investment and seize the leadership positions in the sector. New energy vehicles often fail to achieve their ideal range due to environmental reasons. Enterprises should improve their technical capabilities, increase battery power and lifespan, continuously reduce battery costs, and optimize electronic devices to improve the quality of their own products.The company can provide safer electrode materials, electrolytes, high-strength separators, as well as cutting-edge technologies like fault prevention and control, and intelligent battery health monitoring, for people who are worried about the safety of new energy vehicles.We attach great importance to vehicle safety and do a good

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job in prevention. The company can also improve supporting facilities and services, and do a good job in after-sales work to increase customer comfort and turnover. We can further accelerate the construction of new energy vehicle charging piles and charging station infrastructure to solve the problem of new energy vehicles not being able to charge in a timely manner outdoors. Under the coordination of technology, market, and government policies, new energy vehicles are expected to develop rapidly in the long term in China [10].

6. Conclusion

Overall, whether it's BYD or Tesla, their success has had a huge impact on the new energy vehicle industry. New energy vehicles should keep up with the times, discover more diverse marketing methods, and require more international and distinctive sales strategies. At the same time, more difficulties need to be overcome. Companies should actively develop new technology to solve problems such as inconvenient charging, poor battery life, and high costs for electric vehicles; We should also reach a consensus with the government to introduce new laws and policies to address the issue of charging stations being occupied. This article aims to take BYD Automobile as an example to analyze the advantages and disadvantages of its sales strategy, and provide practical and feasible improvement plans for other companies. Both domestically and internationally, new energy vehicles will become more mature with the development of technology, and the future new energy vehicle industry will become better and better.

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