



**Brand management and sustainable development in  
electronic vehicles industry**



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#### ABSTRACT

The development of the automobile industry has revolutionized the way of life of human beings and improved their standard of living. However, most traditional cars use petroleum as the power source. With the shortage of energy and environmental pollution, the demand for new energy vehicles has increased. With the continuous development of automobile and car battery technology, the electric vehicle industry is developing rapidly. The electric vehicle industry has become one of the most important industries in the world. The development of electric vehicles has become a globally recognized consensus. With the strong support of governments, the new energy vehicle industry is booming.

Electric vehicles are slowly taking over the entire automotive market. It is inevitable that electric vehicles will become mainstream in the future new energy vehicle industry. Because of its energy-saving features, people are more inclined to use electric cars. If there is a demand, there will be a market. The market for electric vehicles is a global one, and since 2018, almost all traditional car companies have started to invest in the production and research and development of new energy vehicles, including the representative Mercedes-Benz, Audi and BMW. The competition among electric vehicle brands has also become more and more intense.

**Key words:** Brand and brand management, sustainable, electric vehicle(EV)



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# **1. Introduction**

## **1.1 Research Background**

Since the 21st century, the international automobile industry has achieved rapid development. Especially in recent years, with the continuous improvement of international residents' living standards, cars have become an important means of transportation for convenient travel, and more and more families choose to buy private cars.(Gyaneshwar Singh Kushwasa & Nagendra Kumar Sharma, 2016) According to the relevant statistics of the Industrial Information Network, the production and sales of automobiles in China alone exceeded 40 million units in 2019, breaking the world record again. Its production and sales growth rate also increased significantly compared to 2018, ranking first in the world automotive market for the fifth consecutive year.(Luo, Wu, & Mo, 2021) However, with the rapid development of the international automotive industry, the environmental pollution problems and energy crisis caused by conventional cars are increasingly testing the further sustainable development of the international automotive industry.

With the environmental pollution problem and energy crisis becoming more and more serious. The development of new energy vehicles, especially electric vehicles, has become a matter of great concern to the international community.(Bilan&Lyeonov,2019)The world is currently in the stage of energy shortage. The main source of oil energy consumption is traditional cars, and controlling the number of traditional cars and developing new energy cars is one of the solutions to the international energy shortage. In this context, a lot of money has been invested in the development and production of electric vehicles, and since 2010, many electric vehicle brands have emerged around the world. (Klarin, 2018) Among them, Tesla is the most representative. After more than 10 years of development, the Tesla electric car brand has become very well-known in the world. Because the brand has been recognized

worldwide, Tesla electric car sales have been far ahead of other brands around the world.

Since 2018, more and more independent brands of new energy vehicles have appeared in China. For example, BYD, NIO, etc. In addition, there are many new EV brands appearing all over the world. since 2020, with the continuous progress of EV charging technology, the competition in the EV industry has become more and more fierce. (Jensen & Mabit, 2017) How to improve the awareness of electric car brands has become a problem that many car companies need to consider.

## **1.2 Research Problems**

Electric vehicles are slowly taking over the entire automotive market. It is inevitable that electric vehicles will become mainstream in the future new energy vehicle industry.(Balmer,Powell,Kernstock&Brexendorf, 2017) Because of its energy-saving features, people are more inclined to use electric cars. If there is a demand, there will be a market. The market for electric vehicles is a global one, and since 2018, almost all traditional car companies have started to invest in the production and research and development of new energy vehicles, including the representative Mercedes-Benz, Audi and BMW. The competition among electric vehicle brands has also become more and more intense.(Qiao, Zhao, Hao & Liu, 2019)

When it comes to branding, there is no doubt that brand management is very important. Especially in the fierce market competition, only the formation of their own brand culture can occupy a place in the vast market.(Bilan&Lyeonov,2019) Why did Mercedes-Benz's electric cars sell so well? Even if Mercedes-Benz is not the first company to produce electric cars. That is because the brand of Mercedes-Benz has been recognized by people all over the world. The popularity of the brand is to some extent proportional to the sales of the product.(Majerova, 2020)

At the stage of modern society's rapid economic development, many

enterprises develop very rapidly, but after a few years, they go into decline. This is because most of them have neglected the importance of brand management. Most companies pursue sustainable development, yet they all neglect brand management. This paper argues that the only key to sustainable development is to increase brand awareness and maintain the brand's position in the market.(Kyuhong, 2019)

What electric vehicle companies should do in order to do a good job of brand management and promote the long-term sustainable development of the enterprise is a question that needs to be studied.

### **1.3Objective of the study**

Automobile is the product of the industrial revolution and the pillar industry of many countries.Over the past more than 100 years, the development of the automobile industry has changed the human way of life and improved people's living standards.However, most of the traditional cars take fuel as energy. Under the current situation of energy shortage and environmental pollution, the call for new energy vehicles is more and higher. The development of electric vehicles has become a global consensus, and the electric vehicle industry is booming with the strong support of governments of various countries.

At the same time, how to balance the development of the electric vehicle industry has become an issue that countries need to focus on. With the emergence of more and more new independent brands of electric vehicles, the world automotive market is about to experience an unprecedented change. The purpose of this paper is to explore the brand management model of electric vehicle companies, and to promote the survival and sustainable development of independent brands through comparison, analysis and learning.

### **1.4Scope of the study**

At present, scholars have focused their research on the electric



vehicle industry on specialized technological innovations such as infrastructure construction, corporate R&D(Research and Development), corporate operating models, and national policy deployment. Studies on brand management of electric vehicle enterprises are still rare, and some of them only focus on the marketing strategies of electric vehicle enterprises or consumers' willingness to buy cars. By searching relevant keywords on the Internet and other sources, there are few systematic studies on the brand management of electric vehicles. Based on this, this paper innovatively selects the brand management and sustainable development of electric vehicles from the perspective of research.

## **1.5 Research Significance**

The electric vehicle industry is growing rapidly as an emerging industry. To some extent it has accelerated the development of the whole world economy. When referring to the development strategies of electric vehicle companies, brand management cannot be ignored. The purpose of this paper is to explore the brand management strategy of electric vehicle companies. This is of great significance to promote the brand sustainability development of new electric vehicle companies.

## **2. Literatures Review**

### **2.1 Brand and brand management**

What is a "brand."?The question may seem simple, but few people can give the perfect answer.This article thinks: a brand is "a symbol or a name".It allows consumers to think of a product when they need to buy.Or When you see a brand, you can think of its product.But most important is consumers will eventually choose to buy the product.(Orekhova & Zavialova, 2021) For example, if I want a "fried chicken," I immediately think of KFC or McDonald's, which their product tastes I prefer; or, see "yellow M" I know it's "McDonald's rather

than KFC."This is the brand. (Iglesias & Ind, 2020)

Brand management is centered on the core competitiveness of the brand. Through brand innovation, brand promotion, brand management and other means to increase the brand awareness and to achieve the preservation and appreciation of brand value. (Veloutsou & Delgado-Ballester, 2018)

Enterprise managers need to understand the core principles of brand management: (1) the brand is an asset, the more famous the brand, the easier the product to sell; (2) the brand needs professional packaging; (3) the brand to show correctly; (4) the brand to maintain consistency and focus; (5) the brand needs to be patient management. Only after mastering these principles, we can build the attention to the brand from the heart. Only by paying attention to the brand can managers drive enterprises to attach importance to the brand. (Lin & Siu, 2020)

Four elements of brand management: the first is to establish credibility. Because credibility is the foundation of the brand. Brands with no credibility have little way to compete. (Khudyakova et al., 2020) The second is to gain support. Because without all levels of full support on the enterprise to maintain, the brand is not easy to maintain. In addition to customer support, support from the government, the media, experts, authorities and dealers is also important. Sometimes, we also need the support of celebrities and use their popularity to increase the credibility of our brand. The third is building relationships. Due to the dynamic changes in customer needs, providing personalized service to the customer has become the only way. Only those brands that have a close long-term relationship with their customers will be the last winners. So many brands go to great lengths to find ways to establish direct contact with their customers and maintain customer loyalty. The fourth is increasing opportunities. Customer buying habits have changed dramatically. Advertising alone is far from enough. So the challenge of maintaining and promoting the brand becomes how to allow customers to

fully understand the quality of the product in the most convenient environment.(Baumgarth, Boltz, Schmidt, & Roper, 2020)

## **2.2 Sustainable**

In theory, sustainable development is a development based on the premise of not damaging the future and future generations. With the growing population and the rapid development of science and technology. Some non-renewable resources such as oil and coal are being rapidly consumed by modern society. The traditional auto industry is consuming oil far faster than we think. According to the experts' statistics and analysis, if humans continue to exploit the oil resources at the current rate, then we will consume all the oil resources on earth by 2050. This is a very terrible fact.(Majerova, 2020)

Sustainable development is the development that not only meets the needs of contemporary people, but also does not pose harm to the living environment of future generations.(Habib, Khan, Abbas, Sang, Shahid & Tang ,2018) Population and economy are two of the most important factors, and the sustainable development of population and national economy is the basis of all sustainable development.

Sustainable development is to make the whole human can permanently survive and develop on the earth, and consciously formed by human main body, based on population, resources, ecology, environment, with economic development as the core, to system innovation and scientific and technological progress as the guarantee, to the all-round development and social progress as the goal, to achieve fairness between generations and generations, man and nature of human development path and mode.(Khudyakova et al., 2020)

Sustainable development includes the harmonious and unity of sustainable economy, sustainable ecology and sustainable society.(Klarin, 2018) That means, human beings pursue not only economic efficiency, but also ecological harmony and social fairness in their development, and

finally achieve all-round development. Therefore, sustainable development is a comprehensive strategy on human social and economic development, which includes: (1) sustainable economic development. (2) Sustainable ecological development. (3) Sustainable social development. (Peter, 2018)

Sustainable development is a new approach to human existence that involves not only environmental life, with its focus on resource use and environmental protection, but also economic and social life, which are the sources of development. Sustainable development does not negate economic growth, especially in developing countries, which is, after all, the driving force behind economic development, the increasing material wealth of societies, and the improvement of human culture and skills, thus expanding the range of options for individuals and societies. But the ways and purposes of achieving economic growth need to be re-examined. Sustainable development rejects economic growth that is oriented toward maximum profit or gain at the expense of wealth disparity and predatory exploitation of resources, and encourages economic growth that is low in consumption and high in quality. It encourages economic growth that is low in consumption and high in quality, with ecological protection as a precondition, sustainability as a hallmark, and improvement of people's living standards as an objective. (Orekhova & Zavialova, 2021)

### **2.3 Electric vehicle**

A pure electric vehicle is one that uses a battery as the power source for the vehicle and on-board power as the motive force. It uses the battery as the storage energy source and the electric motor as the driving device of the vehicle, which provides power to the motor through the battery and drives the rotation of the motor, thus facilitating the movement of the vehicle. (Jensen & Mabit, 2017) It meets the requirements of road traffic and safety laws and regulations. The difference between electric vehicles

and ordinary cars mainly lies in the power supply and drive system. (Sun, Li, Wang & Cheng, 2020) Compared with traditional cars, the electric motor of pure electric vehicles replaces the engine of traditional cars, and the fuel tank of traditional cars is replaced by a large-capacity battery. (Hirst, 2021)

Electric vehicles do not produce exhaust gas and exhaust pollution, which is very beneficial to environmental protection and air cleanliness, and is almost "zero pollution". (Kasych & Vochozka, 2018) As we all know, CO, HC, NOX, particulates, odor and other pollutants in the exhaust gas of internal combustion engine will become acid rain, acid fog and photochemical smog. Electric cars do not produce noise like internal combustion engines, and the noise of electric motors is much smaller than that of internal combustion engines. Noise is harmful to human body. (Orekhova & Zavialova, 2021)

### **3. The current situation of electric vehicle brand management**

#### **3.1 Market analysis of various electric vehicle brands**

Tesla dominates among the world's electric car brands. As the world's largest electric vehicle brand, Tesla has become far more influential than any other brand. China's electric car market is dominated by independent brands. The majority of the top sales rankings are by Chinese companies. In China, BYD has a quarter of the market share. Geely ranks second with 45,000 units. Beijing Auto is in third place. China's electric vehicle industry is gradually transitioning from policy-driven to market-driven due to the gradual reduction of policy subsidies. The gradual opening of the market has led to increased competition, and in 2018, the number of electric vehicle companies with sales of more than 10,000 units has reached eight. The top three car companies accounted for 56% of the overall market sales. This figure is down 10% from 2017. This implies an increase in competition and a diversification of market

choices.(Gyaneshwar Singh Kushwasa & Nagendra Kumar Sharma, 2016)

Under the strong promotion of the government, the independent brand enterprises take electric vehicles as an important strategic development direction in the future. They already occupy the majority of the market. (Luo, Wu, & Mo, 2021) Many Chinese car brands also rank among the top in international sales. This is very different from the situation of traditional fuel vehicles. As the Chinese government clearly abolishes the subsidy policy after 2020, it will let independent brands enter into full market competition with foreign brands. At that time, the electric vehicle industry will enter a completely market-driven situation. This also makes many multinational companies confident in the Chinese market and start to speed up the export of their products.

### **3.2 Brand development plan and characteristic analysis of electric vehicle enterprises**

For automotive companies, both foreign car companies and China's own brands, are confident about the future layout of the electric vehicle market. It is expected that by 2025, large car companies will launch more than two hundred new models of electric vehicles, and it is expected that nearly 12 million electric vehicles will be put into production and sales. (Majerova, 2020)With the auto giants turning to electric vehicles, the competition in the industry is bound to intensify in the future.

BYD is mainly developing plug-in hybrid vehicles. BAIC New Energy focuses on pure electric vehicles. Other companies are developing two power models together. In terms of market segmentation, Chery and JAC will focus on light weight A00 class electric vehicles. BYD and SAIC will launch SUVs and other higher-end vehicles with longer range. It is obvious that no matter what kind of technology route to take, companies will invest a lot in the field of electric vehicles to increase market sales.(Kyuhong, 2019)

For the analysis of foreign electric vehicle brands, this paper mainly

selects Tesla as the main object of study, and compares it with other brands, analyzes the development trend of electric vehicle brands and explores how Tesla has gained the highest brand value in the electric vehicle industry in a short period of time.(Jensen & Mabit, 2017)

Tesla, a leader in the electric vehicle industry, released its first electric vehicle product, the Tesla Roadster (a luxury electric supercar), in 2008. At that time, it immediately created a distinctive, luxurious and innovative brand image. With the introduction of the Model S, Model X and Model 3, Tesla has become the benchmark for smart electric vehicles. Tesla's electric cars have shattered the public perception of electric cars and turned consumers' perception of electric cars upside down.(Luo, Wu, & Mo, 2021)

In terms of product innovation, Tesla's ultimate goal is to create a closed loop of energy applications for consumers in a revolutionary way. It has created home power storage devices that can create and store electricity and supply it to electric cars and other home appliances. This will enable households to become energy self-sufficient. In terms of intelligence, Tesla has also stated that all Tesla electric vehicles produced will be equipped with self-driving hardware and that Tesla will form a circle of all users to create a smart electric car sharing model in the future.(Khudyakova et al., 2020)

In addition to very advanced technological innovation, Tesla also brings a new management and business model to the automotive industry. Tesla uses the IT industry's idea of making Apple smartphones to build Tesla's electric cars. The integration of the traditional automotive industry with the most advanced technology industry ideas has also brought a new supply system and sales model.(Gyaneshwar Singh Kushwasa & Nagendra Kumar Sharma, 2016) In terms of supply chain, Tesla's supply chain is more global. In terms of sales, Tesla adopts an experiential direct sales model instead of relying on the traditional sales model.

On Tesla's official website, you can experience the technology and design

of the Tesla brand. And Tesla will regularly update news and information about Tesla and Musk. Even owner stories will be posted frequently. This will allow consumers to have a deeper understanding of Tesla's brand culture and bring them closer to the consumer. Tesla is worth learning from other car companies in terms of creating brand image and maintaining customer relationships. (Bilan&Lyeonov,2019)Tesla now no longer defines itself narrowly as an electric car company, but as a leader in future lifestyles. At the same time, Tesla also holds regular science talks to promote a new sustainable lifestyle. This move makes the best publicity for the brand image. On the other hand, it also reflects Tesla's sense of social responsibility, contributing to the cause of environmental protection and sustainable development of human beings.

#### **4.Problems with Electric Vehicle Brand Management**

With a large number of electric car brands entering the market, it can be seen that electric car brands are currently facing a great challenge. Whether it is technological innovation and quality control, or policy and market changes, are the problems to be solved at the moment. First of all, from the perspective of policy, electric car brands will gradually leave the policy support, policy subsidies to consumers gradually reduce the lure. So how can electric car brands attract consumers will be a big challenge in the future.(Elavarasan, 2019) Especially with the continuous opening of the market, many high quality old brands are entering the electric car industry with full force. Consumers will have more and more choices. Creating a brand and improving their own brand competitiveness is a big problem that many car companies need to face.

Electric vehicle brands don't succeed by publicity. Currently, the high cost of using electric vehicles, short range and poor infrastructure are the main challenges in the development of electric vehicles. Compared with ordinary fuel cars, the price cost of an electric car with the same power is often more than twice as much as the former. This is because the power



sources used in pure electric vehicles include electric motors and batteries. (Iglesias & Ind, 2020) The cost of electric motor control systems is high, especially for large electric vehicles. Currently, most of the power sources applied to pure electric vehicles are lead-acid batteries, which have low energy, slow charging speed, short life span, time-consuming and costly battery replacement. The above-mentioned problems in battery technology are the most significant problems facing electric vehicles at present. Nowadays, the range of electric cars can meet short-distance use. If consumers want to drive long distances, they will have more concerns about the convenience of charging piles and the length of charging time. Therefore, in order to build a brand, technological innovation and quality control are the most important. With the development of industry and market, leading enterprises should play a leading role in promoting this stage. (Khudyakova et al., 2020)Therefore, this requires R&D enterprises to promote the development of the electric vehicle industry through new technologies to improve battery technology and vehicle performance.

Second, the promotion and application of electric vehicles should have a sound infrastructure and related equipment. Including charging station network, battery marketing and service network, vehicle maintenance network. With these infrastructures and related equipment, the charging problem can be completely solved.(Lin & Siu, 2020)

If the infrastructure is not perfect and the charging problem is not solved, pure electric vehicles cannot be promoted and applied.

In addition to the technical challenges mentioned above, there are also a number of service and other challenges.(Majerova, 2020)Since electric cars are more prone to quality problems than traditional cars. The ability to achieve perfect after-sales service and timely repair is the challenge faced by electric cars in the process of building a brand. Moreover, as electric cars are a new industry, the customer group they face is younger. (Gyaneshwar Singh Kushwasa & Nagendra Kumar Sharma,

2016)Therefore, how to meet more personalized and strict customer needs is a problem that needs to be solved for electric car brands.

In addition, there is still a large gap between the competitiveness of China's electric vehicle brands and that of the United States, Germany and Japan. The main manifestations are that the brand is not attractive enough to consumers, product quality varies, high production costs, imperfect charging network infrastructure, key technologies to be improved, etc. These factors have caused the low competitiveness of the electric vehicle industry in the international market, and are the main challenges facing electric vehicle brands.

## **5.How to optimize brand management and promote sustainability in electric vehicle companies**

With the development of information technology, mobile Internet, artificial intelligence, automation control field. Unmanned intelligent driving technology will definitely become a major trend in the development of electric vehicles in the future. (Veloutsou & Delgado-Ballester, 2018)With the gradual establishment of smart regions and smart cities, as well as the rapid development of artificial intelligence technology, human society will usher in a smart life including smart travel.(Jensen & Mabit, 2017)This means that electric vehicles will become a smart travel platform. On this platform will be carried all kinds of intelligent technologies and realize intelligent society. At the technical level, a major breakthrough in key technologies is one of the main goals of China's medium- and long-term development plan for future electric vehicles. In order to accelerate the research and development of electric vehicle technology, China has launched many key projects, including "electric vehicle research and development and promotion and application project", "advanced energy-saving and environment-friendly vehicle technology upgrading project", "automobile quality Brand building project" and a series of related R&D pilot projects. To achieve a

revolutionary breakthrough in technology, significantly improve the development capacity of electric vehicles, and encourage enterprises to develop advanced and applicable electric vehicle products. Therefore, intelligent technological innovation is very important for the brand value management of electric vehicle enterprises, and innovation can form the unique brand advantage of enterprises.

In addition to intelligent development, another major development trend of electric vehicle development is sharing. Shared cars have the advantage of being flexible and convenient, and can better solve the current limitation of imperfect infrastructure. Through sharing, more social resources can be effectively utilized. Moreover, the sharing technology is built on the Internet technology.(Kasych & Vochozka, 2018)On the one hand, it improves the customer's experience and saves labor costs for enterprises on the other. Car sharing also solves the problem of high cost of using electric cars. Just like sharing bicycles, sharing electric cars also calculates the price by using time, which greatly improves the usage rate of cars. Compared to buying a new car, it can save more money for consumers.

With the whole auto industry facing huge changes, another trend in the development of electric car brands is that it is not the traditional car-making companies that are really leading the electric car industry, but a group of high-tech companies.(Luo, Wu, & Mo, 2021)Even companies like Google, Apple, and Facebook are companies that may enter the auto industry and produce huge changes at any time. Therefore, the current electric car companies, even giant companies like BYD and Toyota, are in danger of being eliminated at any time. Just as when Nokia's cell phone bankruptcy was not a big problem with its products, but its strategic layout did not keep up with the development direction of the times. Electric cars are experiencing a transformative era of rapid technological development. It is not enough to think only about how to reduce the cost of this kind of productive problems. (Qiao, Zhao, Hao &

Liu, 2019) Innovation is the theme of this era. Seize the opportunity of the era of change and use the right strategic layout to make the company stand in the many brands of electric vehicles.

## **6. Conclusion**

Brand management of electric vehicle enterprises is a long-term process. Brand management should be taken seriously at the very beginning of a company's establishment. Only successful brand management can promote the sales of the company's products.

Electric vehicles are experiencing a transformative era of rapid technological development. It is not enough to think only about how to reduce the cost of such productive issues. Innovation is the theme of this era. Seizing the opportunity of this era of change and using the right brand management strategy is what will make your company stand out among the many brands of electric vehicles.

Electric vehicles are the main trend of the automotive industry in the next 10 years. Sustainable development is the desire and mission of every company. There is a strong link between brand management and sustainability. The ability to create a strong brand and build a recognizable brand culture is key to the sustainability of the electric vehicle industry.

## **7. Recommendation**

It is necessary to actively guide the integration of the electric vehicle industry with new technologies and promote industrial innovation. With the development of smart cities, intelligent transportation and other technologies. Electrification, intelligence, networking and sharing will become the future development direction of the automotive industry. (Sun, Li, Wang & Cheng, 2020) In the next 10 years, China's self-driving vehicles to achieve two important goals. First, the market share of highly autonomous vehicles will reach 10.00% by 2025; second,

the market share of fully autonomous vehicles will be close to 10.00% by 2030. Currently, the development of China's electric vehicle industry has a certain degree of international competitiveness. Therefore, taking electric vehicles as the entry point, integrating the concept of sharing and developing intelligent networked vehicles is a new driving force for China's auto industry to move to the middle and high-end level. (Francisco & Johann,2021)It is also a new opportunity to promote the upgrading of manufacturing industry. The government should strengthen policy guidance, encourage the diversified and integrated development of electric vehicles, and further explore new business models. In addition, a synergistic development mechanism can be established to promote electric vehicles and the construction of transportation system, energy system upgrade and travel structure optimization. It is important to jointly promote the coordinated development of the automotive industry and the transportation industry.(Luo,Wu & Mo,2021)

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