

COMPETITIVE STRATEGY FOR THE NEW ENERGY
AUTOMOBILE INDUSTRY
– CASE STUDY OF A AUTOMOBILE COMPANY IN CHINA

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-Case study of a automobile company in China

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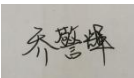
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CHAPTER 1: INTRODUCTION

1.1 Background of The Study

With the continuous progress of society, the global economy has also developed rapidly. Although people's living standard has improved, at the same time, our environment has also been destroyed, which can be viewed as the result of economic development as well. Therefore, more and more countries are beginning to pay attention to environmental problems. Achieving green and sustainable economic development has become one of the economic development goals of many countries.

At present, the world's reserves of traditional energy are decreasing. According to the International Energy Agency (IEA), we know that our world is experiencing an energy crisis. It is caused by many factors, for example, the extraordinarily rapid economic rebound following the pandemic, natural gas price strong increase and others (Global Energy Crisis, 2023). In 2021, energy market has become tightened. Especially, after Russia's invasion of Ukraine in February 2022, the situation of global energy crisis escalated dramatically. In addition, gasoline price is continuously increasing, which has achieved the highest level from 2008 as for the gasoline price. This is also one important reason that make more and more people be willing to purchase the new energy vehicles. It is recognized that develop and use the clean energy is one effective way to relieve consumers' economic pressure under the background of rising poverty and slowing economies around the world. Based on the above factors, in order to alleviate the energy crisis and ensure energy security, many countries have begun to develop new energy to replace the traditional energy. The development and utilization of new energy will help relieve the pressure of traditional energy reduction and reduce the damage and pollution to the natural environment, which also can be seen as one of the development potentials of the new energy industry.

As indicated by Guan et al. (2009), Muntean et al. (2018), Shan et al. (2018), and Shan et al. (2020), China's CO₂ emissions and energy consumption are in the world's leading position. According to Fang et al. (2022), we know that China ranks first in the world in terms of total carbon emissions, of which transport emissions account for about 11% of the national carbon emissions, and road transport emissions account for about 86% of the total carbon emissions. As the world's largest developing country, China should actively assume international responsibilities to reduce emissions and protect our environment. In this global context, the Chinese government has introduced the "double carbon" policies, which are carbon neutrality that will be realized in 2030 and carbon emission peak that will be realized in 2060. Although global and China's annual growth rate of carbon emissions have both decreased in recent years, China's carbon emissions are still relatively higher than the global carbon emissions (Liu, et al., 2022), which shows that China has a great pressure on reducing emissions and realizing the goal of carbon neutrality.

According to the relevant statistics, most of the air pollution is caused by vehicle exhaust emissions, thus, controlling automobile exhaust emissions is of great importance to environmental protection. As Liu et al. (2022) said that transport emissions account for about 25% of the global total carbon emissions. Although our traffic department has issued an implemented a policy to restrict cars from driving, as per capita car ownership continues to rise, the effect of this policy on the environment is limited. Vehicles can be seen as one of the representations of energy consumption. Compared with traditional fuel vehicles, new energy vehicles are undoubtedly a more appropriate choice, especially under the background that energy conservation and environmental protection have become the common goal of the development of all mankind.

As early as the 1960s and 1970s, developed countries represented by the United States and Japan had already begun to formulate development strategies for new energy vehicles (NEVs). But at that time, the NEV industry was not well developed. With the

continuous emergence of environmental problems such as environmental pollution, the depletion of oil resources, and global warming, people have begun to pay attention to the fields of energy conservation and environmental protection, the development of the traditional automobile industry has been impacted, and the new energy automobile industry has once again received social attention. However, the advantages of NEVs powered by clean energy and relatively less exhaust pollution are welcomed by countries all over the world. In China, new energy vehicle is used to describe automobiles that are fully or mainly powered by electric energy, including plug-in electric vehicles, battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and full cell electric vehicles (FCEVs) (PRTM Management Consultants, Inc., 2011; Shen, S., & Shirouzu, N., 2013). The development of new energy and the improvement of public awareness of environmental protection have made the global market for NEVs continue to expand. After more than ten years of development, the current sales of NEVs still show a good trend of year-on-year growth, so the industry still has great potential for development. The advent of the information age not only accelerates the progress of society, but also makes the market environment constantly changing. The expansion of the consumer market has made the competition among enterprises more intense. Due to the complexity and uncertainty of the market environment (Quan, et al., 2018), NEV companies still face more challenges.

1.2 Statement of Problem

The development of new energy vehicles (NEVs) has always been a concern, especially in today's energy crisis and climate change. The appearance and usage of NEVs decrease the reliance on oil resources to a great extent. Through the research conducted by Zahoor et al. (2023), we found that transport is the only sector relating to energy with emissions still growing compared to 1990s, and in these emissions road vehicles accounts for the largest share. Therefore, international organizations and governments wants to reduce carbon emissions caused by transportation sector through introducing the NEVs.

According to the relevant statistics still collected by Zahoor et al. (2023) in their research, in 2021, in terms of the overall percentage shares of energy vehicles in various countries around the world, China maintains the leadership in the global market for vehicles with 45.22% of the global market share, while Germany only ranks second, comprising 42.22% of the global market share. Even so, the penetration rate of NEVs in China is not very high. On the contrary, Norway has the highest penetration rate of NEVs. Based on this, if Chinese government wants to realize the goal of carbon neutrality and carbon emission peak, there will still be pressure on many aspects, such as further promoting NEVs' development. At the same time, it also shows that there has great growth space in new energy automobile industry.

For Chinese government, strongly support to develop NEVs is the right path to achieve carbon emissions goals, and it is the essential way for China to develop from a country that has a high volume of automobile production to a country that has strong technology in automobile production. After more than 10 years of development, China's new energy automobile industry has undergone changes in both the policy environment and development driving forces. For example, the subsidy policy has decreased, changes from policy-driven to market-driven, and so on. Starting from 2018, the China's new energy electric vehicles market development has begun to enter the oligopoly era (Dai, R., 2020), which shows that the development of new energy automobile industry in China has entered the next stage. In the new stage of development, new energy vehicle companies are facing more competitors and more intense market environment. As for the Chinese NEVs companies, the external environment is changing continuously (such as, policy, market trends, consumer preferences, etc.), thus, they need to adjust their strategy timely depend on the external changes combining with their own advantages so that they can achieve sustainable success.

Moreover, with topics (such as environmental protection, renewable energy, etc.)

prevalent, some researchers and scholars are willing to and focus on studying new energy industry. The new energy automobile industry, as one of the emerging strategic fields, has attracted much attention. Throughout the research in the field of new energy vehicles, most of them focus on battery technology, support policy, industry development potential, environmental benefits and others, but there are few studies specifically on new energy vehicle companies. Even though some studies involve NEVs companies, most of them use these companies as a carrier to study market status, technological innovation, competition pattern, etc., and there is less research on the strategy of the NEVs companies themselves, and in particular, there is less case study on China's local new energy vehicle brands. In a company, a strategy is an action plan that aims to achieve a specific goal, which refers to a company's future development direction and which field they will focus. It helps the company make decisions and rationally allocate its resource so that they can achieve their long-term objectives. Thus, a correct and suitable strategy plays a crucial role in forming its own competitive advantage for a company.

In this research, we choose a Chinese leading NEVs company in the industry as an example to study its current strategy, competitive advantages, external environment that they face, dilemma and problems in their further development, and propose some suggestions on adjusting current strategy. On the one hand, this research aims to find problems that the company will face in the new market environment and put forward some feasible suggestions. On the other hand, through studying the development tactics and strategic choices of leading companies in the industry, we can provide a sample for other local companies' development. After all, in addition to traditional car brands, there are also new car-making forces, foreign brands and technology companies that are actively joining the new energy vehicle industry. It is of great significance for new energy vehicle companies to maintain and even enlarge their market share in the fierce market competition so that they can achieve their expected profits and goals.

1.3 Objective of the Study

In terms of the general objective of this case study, it takes BYD as an example researching on its competitive strategy that mainly focuses on the Chinese market.

Thus, this paper is to find the company's advantages that are conducive to better competition in the market and problems and development bottleneck that exist in their current strategy through analyzing the external and internal environment so that we can evaluate whether they need to adjust their existing competitive strategy. What's more, when we do the situation analysis, industry analysis and competitor analysis will be mentioned as well. Based on the overall analysis, then we will make constructive suggestions on their competitive strategy, which focus on their business level.

For the specific objective of this case study, it can be summarized as follows:

1. To understand the general external environment. PEST analysis model will be used to promote an overall understanding of the external environment.
2. To study the industry environment. We need to use Porter's five forces model to study, which can understand industry development trends and potential so that we can ensure that the company's overall strategy is in line with market demand.
3. To analysis their competitors in this industry. This analysis is essential for the company since we need to have a good understanding of our competitors, such as knowing what strengths and treats they have compared to us, which helps us find issues and opportunities that exist in the process of development.
4. To do the internal analysis. This part mainly refers to value chain analysis and evaluate the importance of these activities related to value chain.
5. To conduct SWOT analysis. Besides understand competitors, it is also important to assess our own internal and external resources and threats. Thus,

SWOT analysis can help the company develop a full awareness of all the factors related to make a business decision.

6. To formulate one or more strategy that will be suitable for the further development of the company. Suggest the strategic alternative is one main purpose of this study because this result can provide a guidance to other new energy vehicle companies, such as how to obtain and maintain their market share, how to compete well in new energy market, and so on.
7. To make sure the strategic alternatives have real impact, we should provide insights on how to implement strategies based on analysis of internal resources.

1.4 Significance of Study

1.4.1 Theoretical Significance

The development of new energy vehicle industry will promote the realization of China's carbon neutrality goal and help China achieve a green and low-carbon transition. In this study, we choose BYD, a representative company in new energy vehicle industry, as our study object to ensure this study has the practical significance rather than the findings of this study is meaningless. The focus point of this case study is company's NEVs business. Through analyzing and researching on its social environment, economic structure, market competition, technological dilemma and other problems, we can know the company's status, find its threats and opportunities they face, and provide some valuable insights in terms of the development goals and plans in the next stage. At the same time, it helps researchers and scholars have a better understanding about market trends, challenges, competition forces in new energy vehicle industry. By using a series of theoretical analysis tools of strategic management, it is not only able to find the company's competitive advantages accurately, but also contribute to greatly apply competitive strategy and other theories in strategic management field.

Furthermore, about this study, it also has the significance of adding case studies in the research of competitive strategies in the field of NEVs, which is insufficient part in the existing study. According to the findings of this study, we can find that BYD's success in new energy vehicle industry is mainly due to its technological innovation, supply chain management and sustainable practices. Research on these aspects enables other companies that are in the same industry or different industry deeply understand how to make themselves thrive in the strategic emerging industry.

1.4.2 Practical Significance

According to the national policies, the automobile industry, as a national economic growth point, its transformation is an inevitable trend in order to achieve the goal of carbon neutrality and sustainable development, and the new energy industry is the best choice for energy transformation and economic green development. At present, the government's policy for the new energy vehicle industry has changed from an initial subsidy policy to a non-subsidy policy, and the development motivation of NEVs has changed from the initial policy-driven to market-driven. As far as consumers are concerned, due to the rise in oil prices, more and more consumers have begun to choose NEVs, especially for young consumers. Compared with gasoline vehicles, they are more willing to choose intelligent and technological NEVs. Therefore, there are still a large number of consumer groups in the new energy vehicle market in the future. From the perspective of the market environment, an increasing number of enterprises, including not only traditional car companies but also various technology firms, are venturing into the new energy vehicle industry. With the continuous development of science and technology, consumers demand and expectations for science and technology products are higher, thus, this requires new energy companies to improve the sense of science and technology of NEVs, not only to meet consumers' needs, but also to comply with the development direction of China's automobile intelligence.

The economic environment is dynamic. By gaining a deep understanding of the environment of the new energy vehicle industry, we can further determine the effective competitive strategy that align with China’s unique national conditions. This has practical guiding significance for new energy vehicle companies, and contributes to foster the continuous improvement of new energy vehicle technology and industry progress.

1.5 Overview of the Company

1.5.1 Company Profile

BYD (“Build Your Dream”) was founded in 1995, and it is a leading technology company, aiming to “using technological innovation to satisfy people’s yearning for a better life”. Based on the professional experience over 27 years, today, BYD has already been a leading position in electronics, automobiles, renewable energy, and rail transit. And BYD’s zero-emission solutions that focus on energy generation and storage, are expensive and widely applicable. With the advancement of economic globalization, BYD has more than 30 industrial parks and more than 40 branches around the world, and also has established the production bases in the U.S., Japan, Canada and other regions. The strategic layout of the world’s six continents has been basically completed.

In 2003, BYD acquired Xi’an Qinchuan Automobile Co., Ltd, formally entered the automobile industry, and completed listings in Hong Kong and Shenzhen, China respectively. Its market value has exceed 1 trillion yuan, making it the first independent automobile brand to enter the trillion-dollar market capitalization club. Some important nodes of the Group are shown in the table below:

Table 1.1 BYD’s Development History

Year	Development Path
1995	The company was founded in China; supply batteries for mobile

	phone/notebook manufactures.subsidiary
1998	BYD established its first overseas subsidiary, a European subsidiary.
2000	BYD becomes the first Chinese supplier of lithium electronic batteries for Motorola.
2002	BYD was listed in Hong Kong, China.
2003	BYD acquired Xi'an Qinchuan Automobile Co., Ltd. And entered the automobile industry; and deployed NEVs industry.
2008	Buffett announced to subscribe for 225 million shares of BYD at a price of HK\$8.
2009	Entered the pure electric bus and pure electric forklift industry.
2010	BYD established a cooperation with Daimler AG and established BYD Daimler New Technology Co., Ltd.
2011	BYD listed on A shares.
2016	“Cloud Rail” launched, BYD announced to enter the field of rail transit; achieving annual sales of over 100 billion yuan.
2018	Open car intelligent development platform.
2019	Layout of pure electric vehicles.
2020	BYD and Toyota set up a joint venture company, and officially released the “Blade Battery”
2021	Fully switch blade batteries for pure electric models, launch DM-i super hybrid system and e-platform 3.0, and launch DM-i super hybrid models, such as Qin, Song and Tang.
2022	BYD’s business spans the 4 major industries of automobiles, rail transit renewable energy and electronics, and its market value has exceeded 1 trillion yuan, making it the first independent automobile brand to enter the trillion-dollar market capitalization club; in April, it announced the complete cessation of production of fuel vehicles.
2023	BYD has made great progress in electric vehicle technology, design and market influence in 2023, with a focus on innovation and sustainability.

	<p>For instance, BYD’s premium sub-brand, Yangwang, introduces the off-road SUV U8 (its price starts from 1,098,000 RMB) and its super car U9, along with the Yangwang architecture. Additionally, at the Auto Shanghai 2023 exhibition, BYD presented its new models included: B-class pure electric SUV, Song L concept car (part of the BYD Dynasty series). BYD Seagull and BYD Chaser 07 (part of the BYD Ocean series).</p>
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Sources: Own developed from BYD’s official website

As one of the world’s latest NEV manufactures, BYD has always adopted the development strategy of “leading technology, leading quality, and leading the market”, and has always insist on independent research and development, independent brand, and independent development. In addition, BYD is also actively establishing and deepening cooperation with industry partners such as Mercedes-Benz and Toyota to continuously promote the stable development of the industry. In terms of technology development, BYD always insists on independent research and development and independent innovation. After more than 20 years of accumulation, at present, BYD has already possessed the core technologies for the whole industry chain of NEVs such as batteries, DM super hybrid technology, e-platform 3.0, CTB battery integration and IGBT chip. Technological innovation ability is the core competitiveness of the company, and their development concept is “technology is king, innovation is the foundation”. Moreover, BYD has maintained the No.1 car sales in China for 9 consecutive years, and has always maintain a good momentum of steady development in the field of NEVs. The clean energy industry is the key field of BYD’s future development. The company will rely on its core technical advantages in the clean energy field to actively develop various emerging energy technology fields.

1.5.2 Market Needs

As the epidemic is gradually brought under control, the macro economy is gradually

recovering, and the NEV market also resumes development gradually. With the continuous development of the NEVs industry, in order to further regulate the market environment, the government's supportive policies have also shifted from subsidy policies to non-financial policies. From Kong, C., Men, F., & Sun, T. (2021), we know that as for the policy environment, double points, product access and battery specifications and other policies have become the point, which means that there has been a long-term support mechanism gradually for NEVs. It can be seen that the country is promoting the further upgrading of the NEV industry. At present, the NEV market has entered a period of rapid growth.

From the perspective of social demand, the market will continue to grow. For NEV enterprises, in the future development, the main pressure will still come from the development of core technology. Although the sales of NEVs have been increasing in recent years, and the change in consumer awareness has also increased people's willingness to consume, some technical issues are still key factors that consumers will consider in their purchase process, such as battery life, drive-ability and safety, value preservation, degree of intelligence and so on. As far as consumers are concerned, their motivation for purchasing NEVs has changed from "curiosity" to "use". Compared with owners of fuel vehicles, consumers of NEVs have the following characteristics, for example, younger age, more obvious family attributes, higher proportion of women, higher education and professional level, and more strong spending power. On the whole, the trend of younger NEV owners is emerging. According to industry consumer age surveys, the average age of NEV consumers is under 35 years old, and the proportion of people in all age groups under 45 years old is higher than that of fuel vehicles. For young consumers, they are curious about high-tech and new experience products, and are willing to pay a certain premium, and are more willing to pursue cutting-edge technology products. In addition, nearly one-third of consumers are women. For female consumers, NEVs have fashionable appearance, intelligent operation, simple purchase, and convenient driving, which will make them more willing to buy. With the continuous popularization of electronic

consumption, NEVs are also regarded as electronic consumer goods by young consumers. This is because the usage habits of many functions of NEVs are more similar to electronic consumption habits such as mobile phones.

Therefore, whether it is from the view of government policy guidance or consumer preferences, the NEV industry will have higher and higher requirements for vehicle technology and intelligence. The market's demand for products is not only in quantity, but also in product quality.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter is based on describing the theoretical frameworks (actor-network theory, resource-based view, and innovation diffusion theory) that are applied to research in the new energy automobile industry. The global new energy vehicles market scope, new energy vehicles market in China, and competitive landscape and new energy vehicles market share analysis are briefly discussed with the help of literature.

2.2 Research in the New Energy Automobile Industry: Theoretical Frameworks

2.2.1 Actor-Network Theory

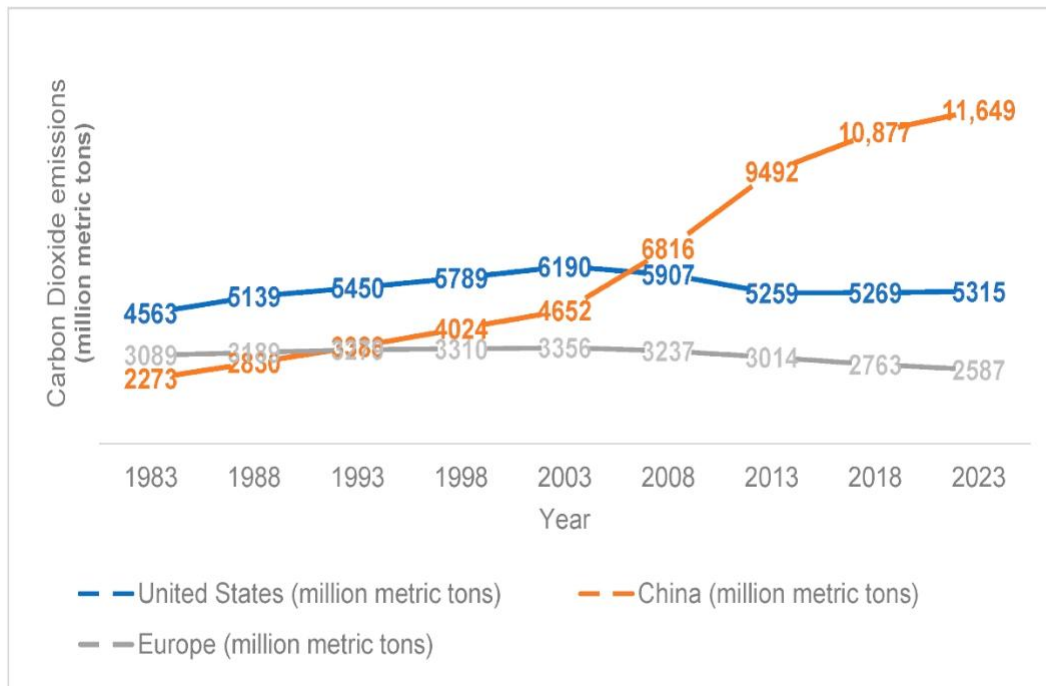
Aka (2019) argued that the actor-network theory (ANT) gives an interesting point of view of the new energy automobile industry, especially in the context of the shifting car market landscape. Moreover, ANT is a more appropriate lens to understand the interactions among the actors. This theoretical framework illustrates a demonstrative multifaceted relationship between actors of mankind and non-man rooted in the fact that all factors mentioned above technological innovation, market dynamics ([Beamish](#)

[& Chakravarty, 2021](#)), and social response are accomplished jointly by all these actors. If one regards NEVs, ANT discloses a complicated network of actors, which entails the manufacturers, the consumers, the legislation makers, the infrastructure supplier, and sometimes even the vehicles.

[Ryghaug & Skjølsvold \(2023\)](#) contended that noticing the unique and dynamic situations of ANT proves how the various actors, both human and non-human, are dynamically interacting to impact the adoption and diffusion of NEVs. In this particular network, manufacturers are enormously important contributors because they are not only responsible for the design and their production but also for strategic alliances and partnerships to strengthen their market share ([Aka, 2019](#)). Whereby the graph indicates new NEV models for various large car manufacturers, this reflects their collective aspiration through the growing market for zero-emission transportation solutions as well ([Cao et al., 2022](#)).

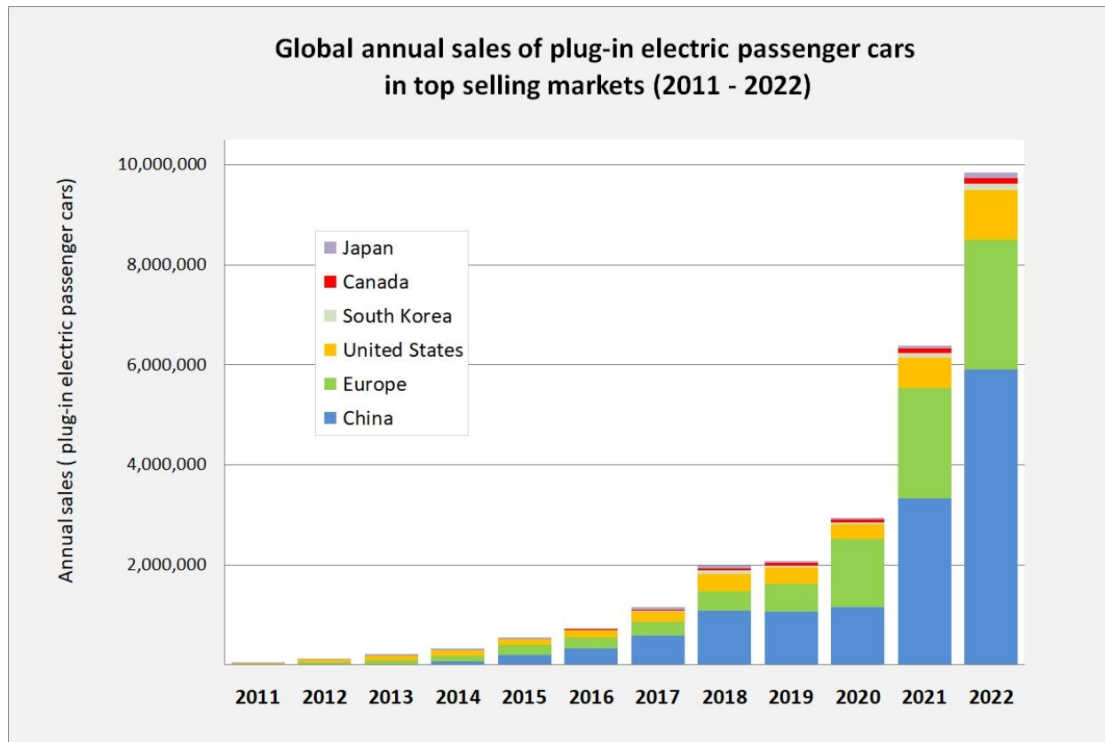
The ANT approach hence fairly outlines the change occurring in the role of consumers as active agents in modeling the future of the electric vehicles industry. On the one hand, a variant of buying habits driven by aspects such as ecological awareness, cost-effectiveness, and technological traits dictates to some extent the trend in market development ([Chen14, Jing15, Yingjie16, & Ziji17, 2023](#)). Some statistical data in figure 01 shows the continuous growth of interest in electric vehicles in consumers which rises as climate change is getting more and more known and carbon emissions are becoming a crucial issue from 1983 to 2023. It is 11649 million metric tons in China ([Jiang & Liu, 2024](#)). The surveys show that there is an influx of the notion that an electric vehicle (EV) can be a substitute for traditional gasoline-driven cars and represent a turning point in the way how people think about sustainable mobility.

Figure 1: Energy-Related Carbon Dioxide Emission (Alanazi, 2023)



Governments use subsidies, tax credits, and mandated rules to increase NEV demand and encourage producers to invest money into research and development. Moreover, ANT highlights the significance of these non-human agencies such as charging infrastructure, battery technology, and renewable energy sources considering that they are the major drivers of change within the new energy automobile industry (Lai, Li, Luo, & Wu, 2023). Multiplication of charging systems, battery development, and renewable energy sources integration into charging infrastructure are all noticeable factors that promote EV widespread adoption expectations (Ryghaug & Skjølsvold, 2023). Data illustrates that charging infrastructure grows exponentially, worldwide, as vast amounts of money are being directed towards upgrading fast charging facilities and developing new charging technologies. Statistics as shown in figure 02 provide 10 million sales in 2022 in top-selling markets, the best images that reflect the influence of the policies in regions with the displayed programs which translated to increased sales of the electric cars and corresponding infrastructure boost (Qu, 2023).

Figure 2: Annual Sales of Electric Passenger Cars Source with Respect to Country (SNS Insider, 2023)



2.2.2 Innovation Diffusion Theory

Xia, Wu, & Zhang (2022) stated that innovation diffusion theory (IDT) is an established conceptual basis for studying technology diffusion patterns, which is relevant to the auto industry especially trading in China and companies such as BYD. This theory proposes that many factors such as innovation's attributes, its channels of communication, the social systems, and the period it takes for an innovation to reach acceptance by the population; all play a role in the diffusion of the innovation (Zhu, 2023). When testifying in the case of mobility solutions, particularly in the fast-growing Chinese market, IDT highlights those factors that define the adoption of new energy vehicles (NEVs), with BYD being the company that has belonged to the first rank of innovative and penetrating markets internationally. Having a growth story, BYD has become an important player in the electric vehicles market all over the world by building on technological and strategic partnerships as vital driving forces for innovation and market expansion (Xia, Wu, & Zhang, 2022).

Consequently, the most critical factor in BYD's success is that the company has been concentrating on creating the best EV tech in the world and making a wide range of different products for people who have different tastes. Through the Chinese market, the IDT Company places factors that are facilitating the widespread spread of NEVs, showing that BYD is the driver of adoption (Zeng, Li, Mao, & Wu, 2023). China's Clean Energy Targets and Stricter Emission Regulations 'bring up' the climate for the quick rise of electric vehicles, and stimulate consumers and EV producers to develop sustainable transportation systems. The numbers show electric vehicle sales in China have outpaced fossil fuel cars and are achieving an accelerating growth rate in the NEV market as shown in figure 03 which is 10522 equals to 10.5 million with a 55 % increase.

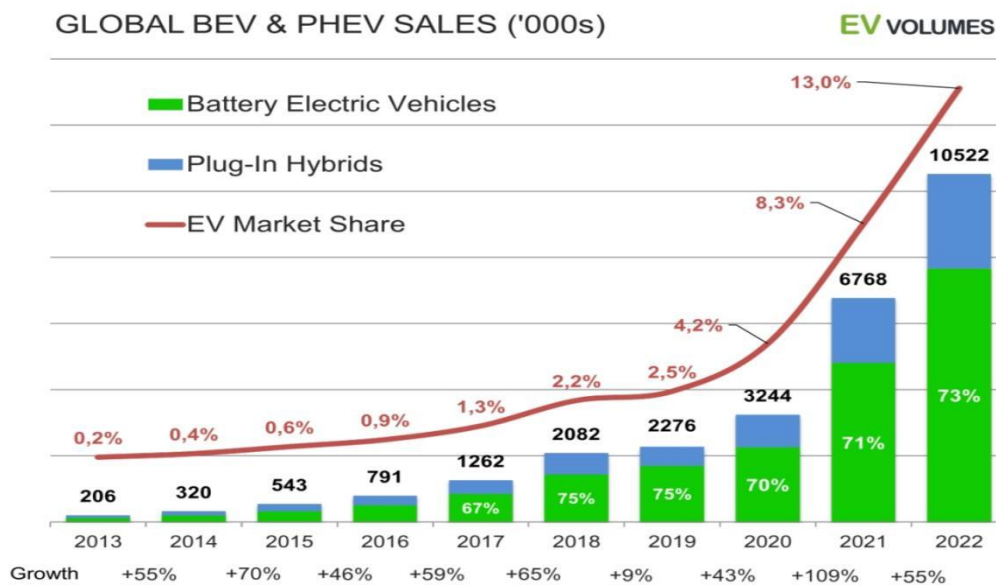


Figure 3: Global Sales of BEV and PHEV (EV-Volumes, 2023)

Along with BYD's creative product development policy together with strategic marketing, the process of substitution widespread is made even faster in China. The Company's assortment of electrified vehicle types, including passenger cars, buses, trucks, and forklifts, meets the demand for consumers, businesses, and other fields of interest (Zahoor et al., 2023). The role of collaborations between government

institutions, public transport companies, and private businesses in the promotion of BYD's electric vehicles has facilitated their placement beyond the sectors through the electrification of China's transportation landscape ([Xia, et al., 2022](#)).

Beyond that, IDT stresses the effect of communication channels and the power of social networks in tweaking the increase of innovative perspectives. The successful marketing approaches led by BYD, along with the outlets' global network and the company's online platforms, have had a great impact on the information spreading related to electric vehicles, as well as pushing the borders of electric changes ([Li, Zhang, & Zhao, 2020](#)). Brand awareness was enhanced by people-to-people connections on social media platforms and by word-of-mouth recommendations that eventually made the public buy more of BYD's EVs. The good relations of BYD with government agencies, fleet operators, and a powerful group of stakeholders have afforded the company a solid reputation and encouraged the customers to have trust in the company and that has led to the consumer's confidence in the company ([Wen, 2023](#)).

2.2.3 Resource-Based View

Muench, Benz, & Hartmann (2022) explained that the RBV (Resource-Based View) is a helpful tool that organizations in the automotive industry, specifically oriented toward the segment of new energy vehicles (NEVs), can use to evaluate their competitive advantage. According to RBV, the competitive advantage of a firm does not only come from the utilization of the unique bundles of resources and capabilities, but also that these are as valuable, rare, hard-to-imitate, and hard-to-substitute. RBV (Resource-Based View) in this light illuminates the strategic relevance of RBV (Resource-Based View) as a source that helps the market leaders to achieve market leadership and major in NEV business (New Energy Vehicle) ([Kalaitzi, Matopoulos, & Clegg, 2019](#)).

In phase with the vein of the competitive advantage interpretation model is the scenario when BYD, a Chinese multinational specializing in EVs and rechargeable batteries can be referred to. BYD has been developing fast and is becoming one of the major electric car companies in the world, which can win by the excellence of their resources and competencies and improve their abilities. BYD has a strong basis in R&D that has brought about innovation in battery technology and electric propulsion systems, making the company build these technologies from scratch ([Muench, Benz, & Hartmann, 2022](#)). BYD has had the chance to make with its wide investments in research and development, also focusing on innovation and differentiation of products ([Beamish & Chakravarty, 2021](#)), the ability to come up with the latest electric automobiles that have proved to be dependable, have outstanding performance, and are affordable. Blade Battery technology developed by BYD is currently recognized as the most advanced lithium-ion battery pack in terms of energy output, safety, and prolonged usage and hence, the company holds a prominent position as the nearest competitor with similar offerings in the NEV market.

Not only has that but RBV stressed the vital role that intangible assets play in strategic infrastructure like brand reputation, organizational culture, knowledge, and managerial competency. The reputation as a strong brand BYD and the emphasis on quality and sustainability as vectors of competition are the factors enabling this company's competitive edge and customer satisfaction ([Cho & Shin, 2022](#)). As the brand name ensures reliability, safety, and awareness about the environment, the trust of the public in this company keeps on growing creating positive reinforcement of the market as well as the brand equity ([Liang & Lu, 2022](#)). RBV emphasizes the key role of strategic relationships (strategic alliances, partnerships, and strategic assets) as a means to enhance a firm's competitive advantage and the extent of the market. The collaborations of BYD together with different levels of government authorities, public transportation, bodies, and enterprises aided in the large-scale deployment of electric vehicles in different industries, such as private and public transportation, logistics, and

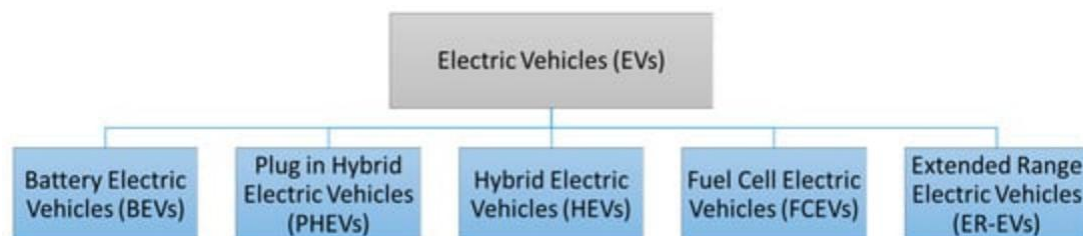
shared mobility ([Aka, 2019](#)). BYD partners with these other businesses, thereby giving them the chance to market in new markets and the channels of distribution, as well as increasing brand awareness and credibility in the NEV market, which helps the city compete favorably ([Lai, et al., 2023](#)).

Also, it is argued by Kalaitzi, et al. (2019), RBV stresses the importance of dynamic competencies for the durability of a firm's advantage in the long run. Indeed, BYD commits to talent development, technology innovation, and market enlargement very well, and thus it always can satisfy the new market conditions, industry trends, and all kinds of clients. The facade of a culture of innovation, agility, and continuing working process enables BYD to maintain its dominance and latest technological development in the dynamic environment of the NEV (new energy vehicle) industry ([Jiang & Liu, 2024](#)).

2.3 Global New Energy Vehicles Market Scope

As related to the global NEVs area one can find many vehicles fuel-driven with additional energy sources that can power them. These are primary electric and hybrid technologies. By and large, the market scope refers to EVs (electric vehicles), PHEVs (plug-in hybrid electric vehicles), and FCVs (fuel cell vehicles) as well as other vehicles as shown classification in Figure 04.

Figure 4: Classification of Electric Vehicles Source: (J. A. Sanguesa, 2021)

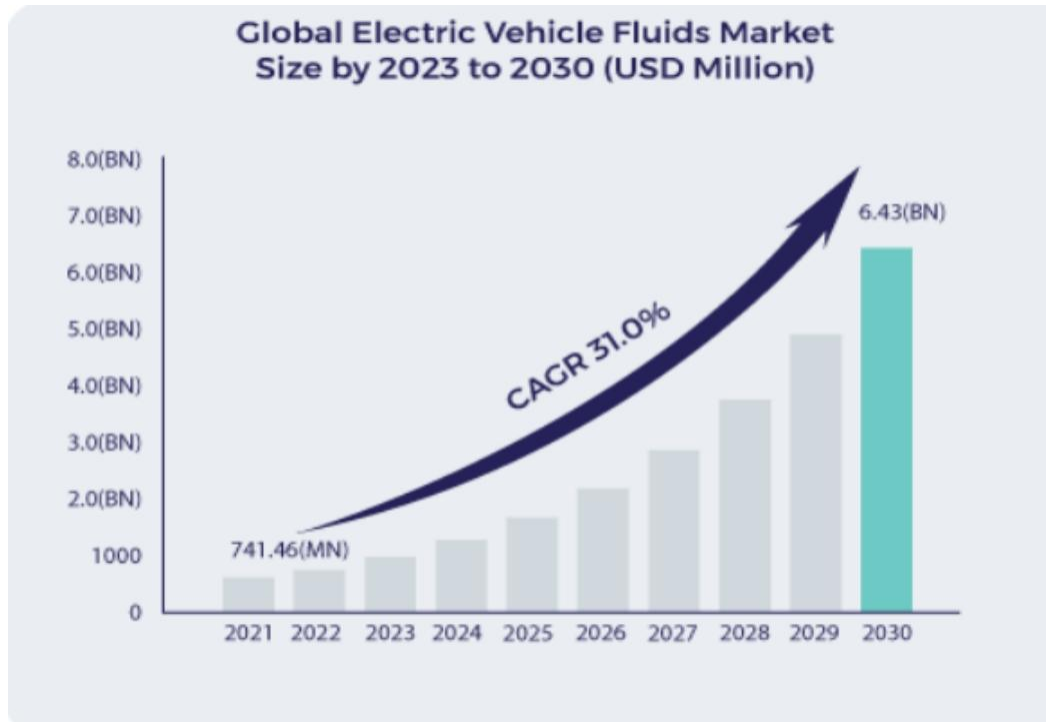


NEVs are tailored to cut off dependence on regular fossil fuels, diminish greenhouse gas emissions, and in turn address pollution problems that arise when there is an

increase in the usage of internal combustion engine vehicles. The world market for the NEV, whose sales data shown to exceeded 3 million units in 2020. The state has found the Chinese brand, with the country alone over the globe for more than half a year, selling almost 1.3 million NEVs in 2020, and 2020 being only. In Europe, there has been a tremendous expansion; almost 1.2 million units of Norway Electric Vehicles were sold in 2020, an increase of 146% from sales in 2019 ([Jiang & Liu, 2024](#)).

Only battery electric vehicles (BEV) have a strong presence in the market (BEV). They make up over 70% of the NEV market globally. To top it all, the ever-improving technology of lithium-ion batteries has significantly enhanced EV uptake: the cost has dropped significantly with an 89% drop during 10 years between 2010 and 2020 ([Lai, et al., 2023](#)). Figure 05 explains the size of the electric vehicle fluids market in the year 2022 was USD 741.46 million and because it is growing exponentially, the goal here is to reach \$6.43 billion by the year 2030 to do so need a CAGR of 31.0% over the forecast period 2023-2030 (SNS Insider, 2023).

Figure 5: Global Electric Vehicle Fluids Market Size by 2023-2030 (SNS Insider, 2023)

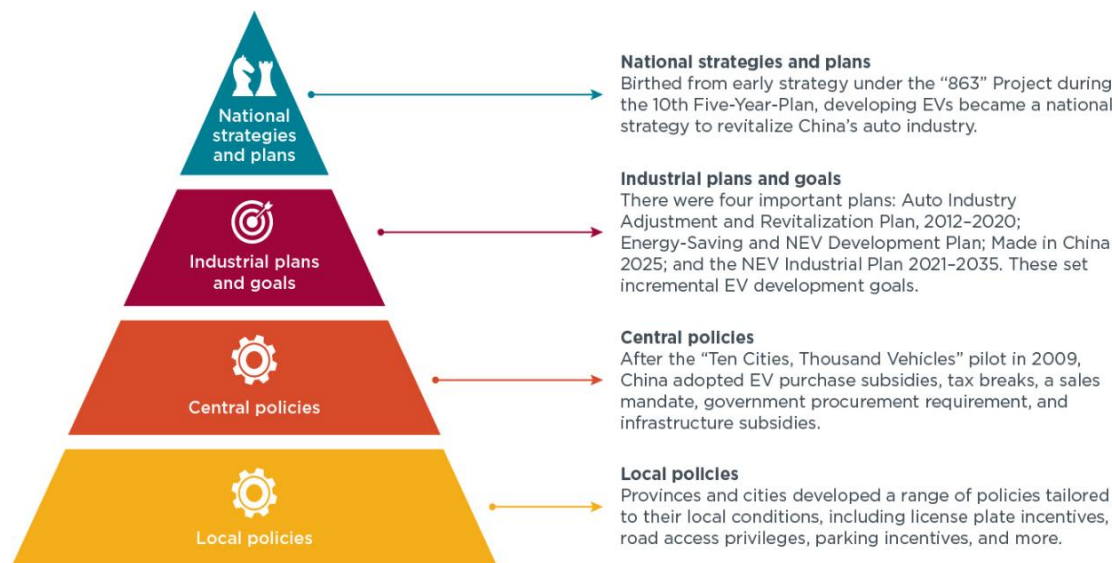


The scope of the global NEV market covers several regions which are among the major ones such as North America, Europe, Asia-Pacific, and others. China, the world's largest car market, exactly sees how the country plays a major role in the NEV market, with such governmental support along with policies and plans of the country making it achieve the clean energy goals ([Wen, 2023](#)). Some other key markets such as the US, Europe, and Japan are also discovering rapid growth in the number of electric vehicle market share and this market share is being driven up due to mandatory regulations, technical excellence, and increasing consumer awareness. The key participants involved in the global market of NEVs are vehicle producers, battery suppliers, charging facilities providers, governmental agencies, and consumers. Automotive companies are committed to investing vast sums in research and development to expand and invest in new NEV products ([Zhu, 2023](#)). Complementary to that, the battery suppliers are seeking to develop advanced battery technologies to enhance energy density, performance, and cost-effectiveness.

2.4 New Energy Vehicles Market in China

NEVs in China had massive growth in a very short time because the government gave incentives, technologies progressed, and consumers respected the environment more. In recent years the crucial role of China as a global consumer in EVs (Electric Vehicles) has been realized as Chinese manufacturers such as BYD take up part of the market (Chen, Wang, Yuan, & Zhang, 2023). By the end of the year 2020, China had the largest number of plug-in electric vehicles in the world, with the total amount coming to over 4 million which it was reportedly by the China Association of Automobile Manufacturers (CAAM). On a sales figure, China had 1.3 million NEVs offload in 2020 alone which is outstanding compared to what there had been before (Boxcar-Admin, 2021).

Figure 6: The Policy Architecture That Supports China's NEV Growth (Boxcar-Admin, 2021)



It is indicated by Liu, Zhang, Avrin, & Wang (2020) that policies and targets mentioned by China for clean energy sources and an aggressive attitude toward electrification have breathed life into the NEV industry and led BYD to the top. The Chinese government has come up with an environment-friendly policy that provides

good incentives and policies like tax incentives, as well as regulatory mandates to promote NEV adoption and reduce air pollution ([Qu, 2023](#)). Such policies have boosted the demand for electric vehicles. In turn, this has also attracted manufacturers such as BYD to explore research and development sectors that they can engage and invest in to improve their offerings ([Lai, et al., 2023](#)).

Through BYD's endeavors in the Chinese NEV market, one can see that the company has succeeded in many factors. Besides, the company's vertically integrated business system allows it to have a strong hold throughout the value chain from production and battery fabrication to vehicle manufacturing, hence providing a superior positioning in terms of cost-effectiveness and quality control ([Jiang & Liu, 2024](#)). This fusion of hybridizing technologies from other industries like the Blade Battery technology with its high energy density, improved safety features, and extended lifespan than traditional lithium-ion batteries essentially makes BYD an automobile giant ([Chen, et al., 2023](#)).

In addition to this, roughly BYD's efficiency is due to the strategic partnerships and joint ventures made with government institutions, affordable movement authorities, and private companies which have led to an outstanding deployment of electric vehicles in the company in different sectors. The firm has been supplying e-buses to various Chinese cities for some time now, therefore contributing to the growing electrification of public transport with buses and lowering emissions in urban areas ([Lai, et al., 2023](#)). Besides, BYD's electric taxis, delivery vans, and logistics vehicles offer a good choice for fleet operators who have long been pursuing reducing operational costs and complying the environmental rules and regulations. Figure 07 shows BYD has the highest retail sales in China equal to 2.706 million, 2nd is Tesla with almost half million (Zhang, 2024).

Figure 7: NEV Retail Sales in China (Zhang, 2024)

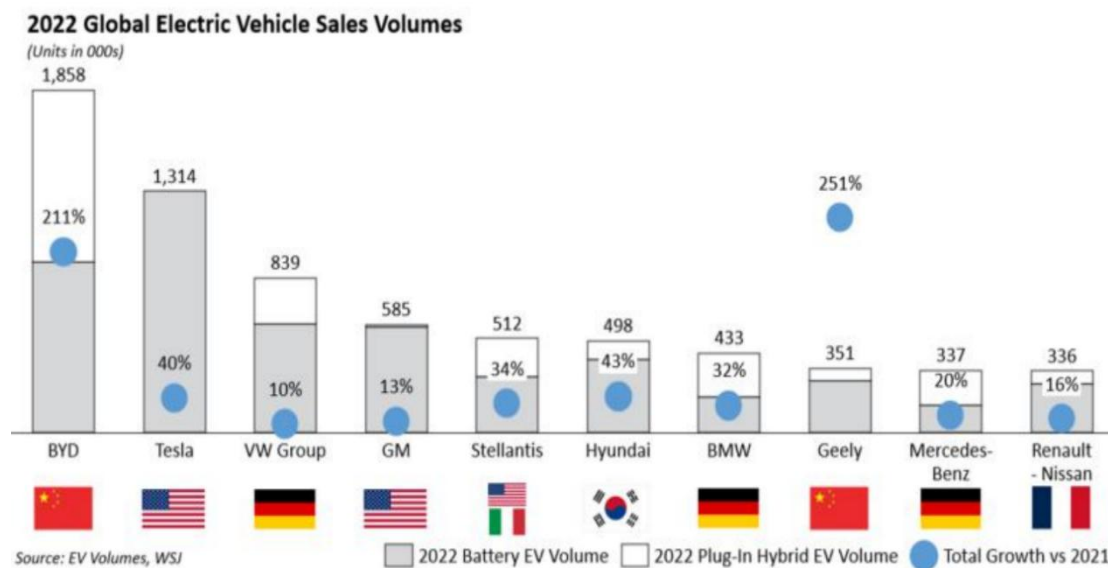


BYD’s perception as a reliable, safe, and innovatively tech-savvy firm brand justifies its authority as a leader in the Chinese NEV market. Another study by Cao, et al. (2022) reported that BYD consistently commits its resources to research and development, as the community goes forward, BYD would like to extend its business scope, getting further touch with its customers. As demand for NEVs in China and other worldwide markets continues rising at a high growth rate, the company takes the opportunity to gain a greater market share and become one of the key players in the sustainability transition journey. China setting its targets on emission reduction and ecologically sustainable development, BYD is justly a part of a booming NEV market and has progressed route to changing the dynamics of the car industry (Zeng, et al., 2023).

2.5 Competitive Landscape and New Energy Vehicles Market Share Analysis

The NEV industry a global arena is competed by several well-known automobile firms vying for market share, using their strengths to achieve certain specific objectives. Tesla, Inc., which became known as a leader in the electric vehicles area is driven by the success of its unique models like Model S, Model 3, Model X, and Model Y (Cao, et al., 2022). Tesla has been known for its innovative technology orientation, perfect performance, and cutting-edge knowledge. Figure 08 presents unit sales volumes of BYD exceeding other electric vehicles with 1.858 million in 2022. Total growth is 211%. Tesla is in 2nd number with 1.314 million unit sales and 40 % total growth (Moore & Cook, 2023).

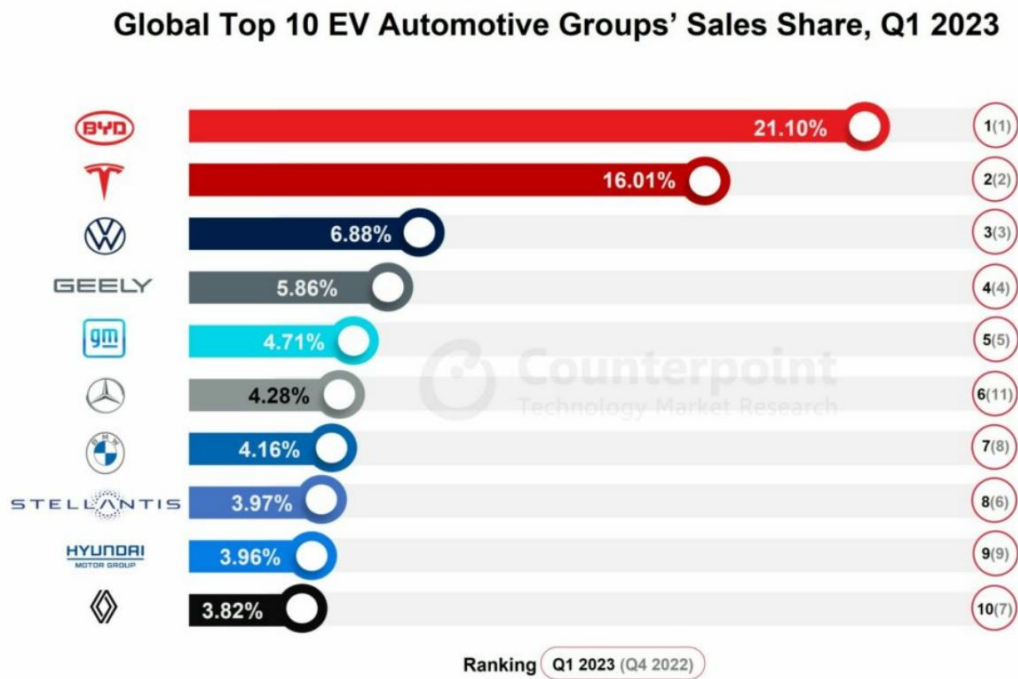
Figure 8: Global Electric Vehicle Sales Volume (Moore & Cook, 2023)



In 2020, BYD posted an electric vehicle sales amounting to around 189,000, which was a mix of either passenger or commercial vehicles, as expressed in the company reports. For the Company, NEV sales made up most of the income, the company had revenue of €7.5 billion equivalent to USD 7.8 billion in 2020, a 30% increase compared to the previous year. By the end of 2020, BYD owned nearly 6% of the global NEV market according to industry numbers which ranks as one of the leading

institutions in this business area worldwide ([Jiang & Liu, 2024](#)). BYD, besides, the firm had really good sales of EVs in China, where it holds the biggest market share, about 12% of NEV sale in 2020. Figure 09 shows BYD is exceeding in sales share Q1 2023 with 21.10 % while Tesla has 16.01% sales shares as global top 2nd EV automotive group Q1 2023 (Counterpoint, 2023).

Figure 9: Global Top 5 EV Brands Sale Share (Q1, 2023) (Counterpoint, 2023)



It should also be noted the competitors of Tesla (including BYD, Nissan, Chevrolet, BMW, Volkswagen, and Hyundai), are also expanding their footprints in the electric and hybrid vehicle market seeking to tap various market segments by offering vehicles that suit varied consumer needs. Such firms are channeling their resources into the implementation of the electrification system, the re-commissioning of new auto platforms, as well as engagement with tech experts for the penetration of

e-mobility ([Zahoor, et al., 2023](#)).

Within the domestic NEV sector, BYD has a considerable market share driven by favorable government policies, demand that is propitious, developed products, and an efficacious promotion approach. The buses of the company are now at the core of the implementation of e-buses in many cities in China, helping to provide electric public transportation to the cities and most importantly to cut down their emissions ([Chen14, et al., 2023](#)). In addition to Baht Electric Vehicles (EVs), such as Qin, Tang, and Han models, BYD also gaining popularity among Chinese consumers leading to enhanced overall competitive advantage in the local NEV market.

[Liang & Lu, \(2022\)](#) explored that BYD currently dominates China's EV market locally, while domestic rivals are also looking to command a bigger share of the market and other international automakers are also entering force as one of the world's biggest automotive markets ([Lai, et al., 2023](#)). Companies among which NIO, XPeng, Li Auto, and Geely are among the emission-free vehicle manufacturers, competing with well-established players like BYD, make haste to set up EV production lines, putting the investment in advanced technology. With marked support from the Chinese government in promoting electric vehicle penetration, along with rising consumer cognizance of the benefits of electric mobility and augmented infrastructure, there appears to be a space for companies to compete in this increasingly globalized market for electric vehicles ([Muench, et al., 2022](#)).

2.6 Chapter Summary

The competitive scenario of the new energy vehicles market is dynamic and highly fragmented with established key competitors attempting to capture pressure into the market through innovation, strategic consolidations, and market development. BYD came out as a top contestant in the international arena, while establishing itself in a

Chinese EV market, that has started to grow, and where many automakers compete for market share. The migration from internal combustion vehicles to EVs grows faster and faster, therefore companies will raise their capital to invest in electrification plants and develop the products that will make them stand out from the competition.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The methodology chapter provides a road map for the research process and shows how each research objective is achieved. It does so by describing the strategies and procedures employed for the research. This chapter will offer a thorough definition of the research design including sources of data collection, data analysis approaches as well and ethical responsibilities. This chapter will provide the rationale of the methodological choices, detail their implementation, and assure transparency, rigor, and validity during the research process, thus allowing to generation of valid and significant findings.

3.2 Research Design and Research Approach

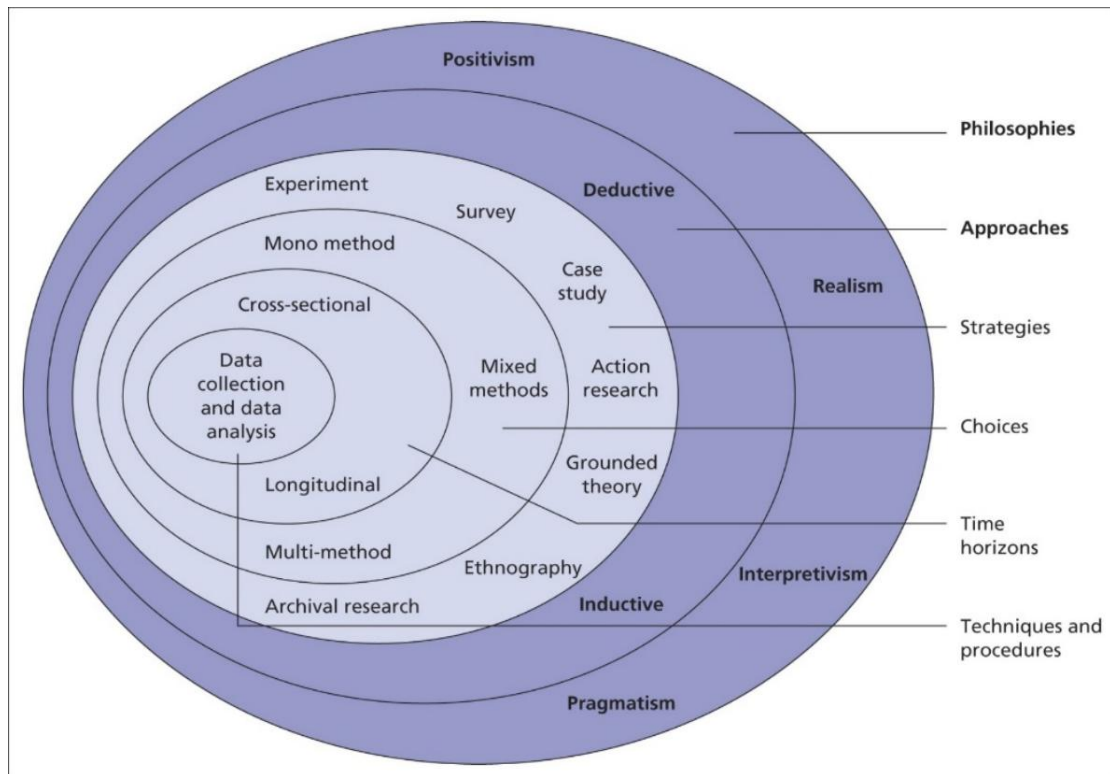
This qualitative business report employs a mixed-method approach paired with phenomenological methodology and a case study to provide a rich explanation of BYD's relative position in the new energy vehicles (NEVs) market. Through the phenomenological approach, a few stakeholders within the NEV industry become the object of the research, which allows getting deep insights into success stories and the diversity of challenges that the company experiences from the standpoint of executives and representatives. The case study methodology plays an important role in the research by providing an in-depth analysis of BYD as a special brand in the NEV market; from this point comes the positioning of the company's unique attributes, relative advantages, and market segment. Furthermore, archival research will be employed with document analysis to support the interview findings and

provide the historical context and other insights related to primary sources ([Sławecki, 2018](#)). The thematic analysis approach will be utilized in dealing with the qualitative data, through theme recognition providing fundamental clues regarding BYD's performance and market power. With this attention to detail, the researcher will provide a well-qualified business report based on a research strategy that will offer much and help shape the NEV industry landscape.

3.3 Philosophical World View

Building on the interpretative framework into which one analyzes BYD's participation in the new energy car market by relaxing and dealing with the kind of complexity and subjectivity that is involved in comprehending its internal activities and operations with the broader industry. It's very important to realize that content is never detached from the people or environment within which the leader operates, and it influences how meaning is shaped. With the role of the NEV market increasing, BYDs can no longer be viewed in isolation. The multilayer factors start from broader socio-economic levels, government policies, technological innovation, and market dynamics ([Oztemel & Gursev, 2020](#)). Consequently, the research would encompass the environments in which BYD operates, including the regulatory frameworks, the market status, or cultural traits, to apprehend the subtleties of the company's strategies and actions.

Figure 10: Research Onion ([Sławecki, 2018](#))



Furthermore, interpretivism gives a central role to reflexivity that is clear in that researchers play in the research process and the interpretation of the findings. Researchers will need to know about their own biases, assumptions, and views that might influence the design of the study, participant selection, and interpretation of data. Transparency regarding the researcher’s position during the research period makes the results of the research reliable and acceptable to the target audience (Sławecki, 2018). This qualitative study of BYD’s place in the NEV market is analyzed from the interpretive paradigm which delves into the divergent meanings, interpretations, and perspectives surrounding the company and industry as a whole. This enables researchers to form a more refined approach to BYD’s activities and consequences, contributing to other discussions concerning sustainable transport and clean energy more valid. Figure 3.1 shows the research onion (Kamal, 2019).

3.4 Methodology

A case study method is the research tool that is applied to analyze the dynamics of

BYD's involvement in the new energy vehicles (NEVs) market. BYD holds a significant position among these companies with its uniqueness and remarkable market share and role in shaping electric vehicle manufacturing processes. The case study learning type allows a thorough investigation of BYD's strategies, accomplishments, obstacles, and impact overall on the NEV industry.

The BYD selection for the case study is attributed to its well-recognized brand and its impact on the NEV market. BYD's strategies and practices deliver great insights into the difficulties of functioning in a shifting paradigm of clean energy transportation. This case study, through the analysis of the example of BYD, is intended to reveal the factors responsible for the particular success of this corporation and, at the same time, the barriers it aims to overcome to meet its objectives ([Muzari, Shava, & Shonhiwa, 2022](#)).

It is from a qualitative research standpoint that the field research is examined, which would conform to the interpretivism paradigm. Qualitative research methods have been proven to be very useful when the subjective experiences, perceptions, and meanings are what the researcher is spending most of his time focusing on. The qualitative method is employed in this study to perceive the diversity of opinions of the executives. The study of this nature is planned to be done using in-depth interviews and document analysis and is to uncover the thoughts and ideas lying beneath the corporate strategy and actions of BYD in the NEV market.

Applying the qualitative research approach to BYD's role in the production of NEVs includes conducting in-depth interviews with the prime stakeholders to extract intricate and detailed data regarding the strategies, challenges, and capabilities of the company. Besides, a document analysis will be done ([Matta, 2022](#)), which will supplement the interview findings and offer a strong contextual view of this report.

The qualitative analysis of the case study aims to present an insightful picture of the company's strategies and the industries where it operates through the application of

qualitative research methods. This exploratory work not only illustrates BYD's efforts in sustainable transport but also intends to enrich the discussion around sustainable transportation and clean energy strategies. There are three types of case studies considered: illustrative, experiential, and instrumental. The selected case study approach is chosen because it is characterized by exploring a particular problem or phenomenon, with the case study used as a tool for gaining analytical clarity that can be applied beyond the specific case study or theory under study.

The case study method instrumental is chosen because of its suitability to BYD's presence in the new energy vehicles (NEVs) market. This method helps researchers to analyze the strategies of the automaker as well as the knowledge of its strengths and weaknesses and to come up with the lessons or principles that can be used when the wider issues of sustainable transportation are brought up. This research aims to demonstrate the role that BYD played and further explore the possible clues that the case provides for policymakers, firms, and researchers who work on the adoption of electric vehicles and climate change mitigation.

To employ the instrumental case study approach for the BYD example, it would be necessary to undertake extensive interviews with the top executives of the company as well as with external influencers who have experience with the NEV market. This interview will include different parts of BYD's operational activities. One of the main objectives of the study involves both types of data obtained from different sources and perspectives to narrow down key factors responsible for BYD's success in the NEV market ([Zhou, Wu, & Hu, 2020](#)). Also, the insights generated would be used to provide actionable information that can be incorporated into the broader context of sustainable transport initiatives. Using the studies of practical cases, the researcher will try to fill the gap between theory and practice by offering practical hints based on BYD's experiences in the NEV market. This study takes BYD as a case, thereby may be used in making policy directions and industry strategies.

3.5 Data Collection

3.5.1 Primary Data Collection

1. The primary data comes from original data gathered first-hand by researchers inquiring into a specified real problem for the research at hand. This data has been accurately collected quickly from the data sources and the whole research work has been made around the research aim. These contributions within the research about BYD's involvement in the new energy vehicles (NEVs) market can be achieved by the collection of primary data through interviewing important stakeholders of BYD, such as the executives of BYD ([Wang, Huang, Daim, Li, & Li, 2021](#)). Recording and analyzing these interviews will help to clarify the direction of BYD's operation, as well as its risks and opportunities in the NEV industry. In addition, relevant data were obtained through participation in audit projects related to the company.

3.5.2 Secondary Data Collection

The second form of data, however, is known as secondary data, which means the data that has been previously gathered by someone else for some reasons not related to the current research study's objectives. These data are collected through sources, for instance, publications, reports, articles, and databases. The investigation of the BYD case involves the utilization of the secondary data obtained through multiple sources, such as BYD's Annual reports, CSR reports, and the overall global reports or publications on NEV. These secondary sources include background information, historical context, and industry insights and enable us to cross-check any interviews that have taken place to ensure missing or unclear data for a complete dataset. For secondary data collection as well ([Liu, Zhang, Avrin, & Wang, 2020](#)), several sources will be used to amend and verify the information from primary interviews. These sources include:

- **BYD Annual Reports:** Reporting of BYD absolves details concerning financial information, operational achievements, and strategic priorities of the company. Data analysis of these releases will benefit the trend of BYD in terms of market share, revenue development, and priority investment in NEV.
- **BYD Corporate Social Responsibility (CSR) Reports:** BYD's CSR reports are meant to give a representation of the company's sustainability priorities, environmental activities, and social responsibility programs. The analysis of these statistics will not only show the path toward ecological sustainability but also, not the least, help solve the socioeconomic problems of the electric vehicle sector.
- **Global Reports on NEVs:** Specific reports that come from respected global organizations and research institutions, namely, the International Energy Agency (IEA), BloombergNEF, and International Council on Clean Transportation (ICCT) will be collected to understand the state of the market there and the trends in it, technology, and the policies related to NEVs.

3.6 Sampling Method

Using a selected portion of the population to either reflect the entire population or provide information on processes that are significant outside of the specific instances, people, or locations under study is known as sampling. Purposive sampling is a non-probabilistic technique where researchers select respondents or cases possessing certain specific characteristics or attributes relevant to the research questions and objectives ([Matta, 2022](#)). In contrast to random sampling, purposive sampling allows researchers to target individuals or cases that can be enriched and thought-provoking to achieve the research objectives. The specific way of sampling guarantees the selected respondents have the necessary knowledge and experience for the analysis of the operations and strategies, problems, and successes relating to BYD within the NEV market. For instance, a successful sampling technique in the data collection stage such as purposeful sampling, involves the selection of key stakeholders in BYD

including managers, middle and upper executives, representatives, and experts, who can offer their views and practical experiences ([Oztemel & Gursev, 2020](#)).

3.7 Sample Size

Sample size computation is the process of defining what number of observations or repetitions will be carried out in a statistical sample. Even in all cases of the empirical studies where the purpose is generalizing the population from a sample, the sample size must be taken into account. Conducting this study of the interview, we based the sampling size in terms of saturation which means that the collecting of data continued up to the point when there are no new information and themes arising from the next interviews. This is the type of approach that researchers can be assured that now the sample size is fit with the researcher objectives. For this same reason it is also possible to keep track and gather different kinds of perspectives and responses of the participants. Research of BYD's impact on the NEVs market can be conducted by interviewing stakeholders inside the company, e.g. the executives, representatives, or experts to gather lots multi-faceted data for the study. Systematically organized and planned interviews will be conducted for the purpose of portraying the selected individuals as characters of different experiences or viewpoints relevant to research topic. All the interviews will be semi-structured in such a way that it will allow a room to go more in deep areas but participants will also have an opportunity to share their stories and ideas freely.

3.8 Interview Design: Semi-Structured Interview

The researcher's interview design choice for the study of BYD's influence on the NEWs sector involves different interview types and each one is especially employed to explore one of the factors that determine what BYD's involvement is all about. One method involves semi-structured interviews that offer a middle ground between rigidity and flexibility to enable the participants to discuss any topic more in detail while making sure the identified subjects are fully covered. A total of 15 to 25 minutes

will be allocated for each interview. These interviews provide a key channel to get good perspectives on BYD's broader strategies, market positioning, and edge against the NEV sector ([Wang, et al., 2021](#)). Interview questions, based on the understanding of the participants' views on the strengths, weaknesses, opportunities, and threats (SWOT) of the enterprise will give an insight into the company's operations and aim.

Semi-structured interviews will go along with key informant interviews, whose purpose is to acquire the up-to-date knowledge and experience of professionals familiar with the NEV industry. The data is collected from two main actors: industry experts on one hand and analysts on the other, who are the key informants. Such key informants offer invaluable information about the broader market trends, rising competition, and regulatory landscape that shape the context for BYD ([Muzari, et al., 2022](#)). These market actors interacting from the bottom up make the research contextualize the strategies and performance of BYD within the broader NEV market ecosystem. Besides these key informant interviews give information about the opinions of the experts, that could help in analyzing the positioning, innovations, and future targets of BYD and gathering external views and industry points of view ([Cao, et al., 2022](#)).

Moreover, in-depth interviews turn the spotlight on the personal perceptions, memories, and stories of the respondents, opening the eyes to the human aspect of BYD's actions and consequences. These interviews become the stage for the participants, where they can share their stories, anecdotes, and misconceptions about BYD's products, branding, and corporate culture. The participants' motivation, preferences, and decision-making process toward BYD's electric vehicles will be unveiled through the in-depth interviews, which, at the same time, have enriched the understanding of customer behavior and marketing dynamics.

3.9 Interview Questionnaire

Table 01 offers the interview questionnaire for the current research. Total nine questions will be asked from the interviewees regarding the BYD's strategic management initiatives, the company's competitive environment, value-chain analysis and future of NEW industry.

Table 3.1 Interview Questionnaire

Competitive Strategy for the New Energy Automobile Industry – A Case Study of A Vehicle Company in China		
#	Question	Coding
01	What strategies do you think BYD is implementing nowadays and what are its competitive advantages in the NEV Industry?	
02	In your opinion, how BYD's strategic moves are influenced by its local and global external environment?	
03	Can you name the major challenges, BYD faces in the NEV sector? What's the company's approach to address these challenges?	
04	How about the role of the policies of the government, cultural trends, technological impact and political stability in the operations and strategic management of BYD among competitors in the NEV market?	
05	Who are main competitors of BYD in local and global NEV markets? Can you elaborate BYD's competitive strategies to deal with its competitors?	
06	How BYD deals with its inbound operations, operations, and outbound logistics?	
07	Can you explain the marketing and sales strategy of BYD? In your opinion, what are the primary factors that influence the company's marketing and sales strategy?	

08	What is the next big thing in the market for NEV, and how BYD is utilizing this to move its business forward?	
09	From your angle, what do you think are the important future directions for BYD to actively explore and increase the market share in NEV industry?	

3.10 Data Collection Procedure

Techniques and processes for acquiring information for research purposes are known as data-collecting methods. They may use either quantitative or qualitative methods and range in complexity from straightforward self-reported questionnaires to intricate studies ([Muzari, et al., 2022](#)). The data technique for this study of BYD’s critical role in developing new energy vehicles (NEVs) industry is a careful and organized process that aims not only to collect but also to get magnified and diverse information from people who make up the key stakeholders in the BYD Company and the entire industry.

- The initial step addresses the issue of participant selection. The most appropriate candidates belong to the group who are skilled and have experience related to BYD and the NEV market. The constituents are made up of influential entities that are composed of executives, representatives, marketing professionals, strategists, experts within the industry, and analysts and they are selected by the knowledge that they have across different boards about the strategies, operations, challenges, and success of BYD in the NEV sector ([Kamal, 2019](#)).
- The initial step is choosing the participants that will be interviewed. Interviews are then scheduled at best convenient times for both parties and a clear communication line is applied to make known the purpose of the study, the interview format, and the expectations of confidentiality and data use.

- Interviews will be conducted under the semi-structured form enabling accidental collaboration of predetermined questions with open-ended commands for full-sided exploration of the views as experienced by respondents.
- The questions have been carefully formulated in such patterns that they cover the main themes, for example, strategies of BYD, market positioning of BYD, key technological innovations, competitive advantages of BYD, and finally, challenges of the NEV sector as well ([Liu, et al., 2020](#)). When the interviewer hits the spot questions may be used to drill down on the specific subjects or to gain context to what the participants are responding to.
- In the process of interviewing participants, the researcher will take extensive notes to capture the respondents' ideas, views, and appearances. Sometimes participants' consent may be obtained to use audio recordings which may help to get an accurate and complete data set. Furthermore, participants may also be expected to share extra information to enrich the study subject, including presentations, reports, or maybe other relevant documents about How BYD functions and its strategies to win the NEV market. These documents being crucial information carriers constitute the context thus serving for building the data collection framework for interviews ([Matta, 2022](#)).
- Ethical principles of consenting participants, confidentiality, and respecting the room for personal dignity are followed during some stages of data recognition. Participants will be assured of data security and anonymity, and the contributors will be appreciated with respect and honesty. Doing this in-depth data collection procedure is a key challenge for the study to receive credible and comprehensive data about BYD's role in the EV market ([Muzari, et al., 2022](#)).

3.11 Data Analysis: Coding and Thematic Analysis

Thematic coding stands as a vital element of data analysis and it is concerned with the discovery and categorization of recurring themes, patterns, and concepts in the data source. First, the sections from the transcripts and the notes collected during interviews are thoroughly re-read to extract essential themes, ideas, and verbal expressions that repeat themselves across participants and interviews. Next, these codes are grouped into categories, which serve as the basic concepts by which the data will be analyzed.

As the analysis is conducted, the codes are put into higher-level themes or principles or based on their essence or the research objectives' relevance. During this process, the researcher will be categorizing and abstracting the information contained in the data which will help in noticing high-level patterns and outlooks. Topics may be about different components of BYD operation such as strategy, market positioning, technological innovations, competitive advantage, challenges, and impacts of NEV on the industries ([Oztemel & Gursev, 2020](#)).

Furthermore, content analysis techniques may be applied to the thorough analysis and comprehension of textual or visual material composition along with reports as well as other resources. Such a thing can be achieved by the means of clarifying certain keywords, phrases, or patterns within the data and discovering their frequency, distribution, and context. Content Analysis serves as a means of enriching and confirming what the interviews have provided for you, thus adding more gravity and weight ([Sławecki, 2018](#)).

In the course of the data analysis process, researchers have especially ensured that the risk of bias is minimized, all steps end up being transparent, and an honest and personal reflexivity is being applied. Decisions made in the digital form are stored with systematic reasoning and data to keep track of transparency.

Chapter 4 Analysis and Evaluation

4.1 Introduction

In this chapter, we mainly refer to analyze the environment that the company is facing, including external environment, industry environment and internal environment. Through using some analytical tools, like PEST model, Porter's Five Forces models, and Value Chain Analysis model, we can have a deep and comprehensive understanding of the macro environment, which helps the company make relatively correct decisions on the future development direction.

4.2 Analysis of External environment

The development of any company must be based on the social environment. Thus, as for a company that wants to make a correct and effective development strategy, it must consider the external environment factors. On the one hand, its development should adapt to the trend of social development and conform to the national conditions. If their development is able to get the policy support from the government, it will also reap the economic benefits brought by the policy support. On the other hand, external environment analysis helps the company to better know their customers needs so that we can better meet our customers needs. It is conducive to find new opportunities as well.

PEST model is usually used to analyze the external environment, which helps decision maker identify and understand strategic opportunities by obtaining information about policies, environments, events, and trends related to business operations. It includes four aspects, such as politics, economy, society, and technology. Political analysis refers to political policy, or industry policy used to support the industrial development. Economic factors includes social economic development level, industrial structure, income distribution structure, consumer purchasing power

and so on. Social analysis helps us know the consumer psychology, behavior habits and consumption preferences. Technology is usually related to high technology and technological innovation.

4.2.1 Political Analysis

International Energy Agency (IEA) said that global electric vehicle sales will increase by another 35% in 2023 in its Global Electric Vehicle Outlook 2023. Part of the reason for the IEA's prediction is the US Inflation Reduction Act. This Act supports green industries and subsidizes consumer purchase of electric vehicles. Globally, major new energy vehicle countries have promoted the development of the new energy vehicle industry through the introduction of subsidy policies.

The United States enacted the Inflation Reduction Act, which provides a tax credit of up to \$7,500 for electric vehicles. Canada launched the zero emission vehicle (tram) incentive program, new energy vehicles can get up to \$5,000 subsidies. Germany offers subsidies of up to 5,000 euros for electric vehicles. Norway actively promotes new energy vehicles, and the purchase of electric vehicles is exempt from purchase tax and import tax, and is exempt from 25% value-added tax and annual road tax, while enjoying half-price toll roads, ferry and municipal parking services. The purchase of new energy vehicles in the Netherlands can get subsidies of up to 2,950 euros. Japan provides subsidies of up to 800,000 yen for pure electric vehicle models. South Korea provides subsidies of up to 6.8 million won for new energy vehicles.

In 2023, the decline in subsidies for new energy vehicles in major countries is different from that in 2022. The United States still maintains a maximum \$7,500 subsidy for new energy vehicles, but increases restrictions on the origin of metal minerals and battery materials. From January 1, 2023, Germany will reduce consumer subsidies for pure electric vehicles priced below 40,000 euros from 6,000 euros to 4,500 euros, and eliminate subsidies for plug-in hybrid vehicles. Britain has scrapped

subsidies for all-electric and plug-in models. France reduced the subsidy for new pure electric cars priced under 47,000 euros and made entirely in Europe from 6,000 euros to 5,000 euros, and eliminated the subsidy for plug-in models of 2,000 euros.

As far as China is concerned, the development of China's new energy vehicle industry is closely related to the policy support of the country, which is also the key reason for the high-speed and high-quality development of the industry. Since 2008, when China first launched the development plan for the new energy vehicle industry, the state and local governments have successively introduced a series of subsidy policies to effectively promote the consumption and supply of new energy vehicles in the early stage of the development of the industry. Beginning in 2023, policy subsidies will gradually decline, and the development of the industry will shift from policy-oriented to market-based competition.

Association of Automobile Manufacturers and the Passenger Federation, we can understand the impact of the following policy changes on the sales of new energy vehicles. In 2012, the three departments of the Ministry of Finance, the State Administration of Taxation and the Ministry of Industry and Information Technology jointly issued a document exempting new energy vehicles from vehicle and vessel taxes, which is consistent with the direction of financial subsidies. In the same year, the sales volume of new energy vehicles was 13,000, an increase of 106.7%. In September 2014, China began to exempt new energy vehicles from vehicle purchase tax, which effectively reduces the acquisition cost of new energy vehicles and plays a direct role in promoting the consumption of new energy vehicles. In 2014 and 2015, the sales volume of new energy vehicles increased by more than 300%. At the beginning of the subsidy policy, there were also bad phenomena such as cheating in the industry. Since 2017, the purchase tax exemption policy has gradually declined. The government began to gradually adjust the subsidy policy, and introduced the double points policy. In 2021, under the influence of the "dual carbon" policy, the overall production and sales of new energy vehicles showed explosive growth, with

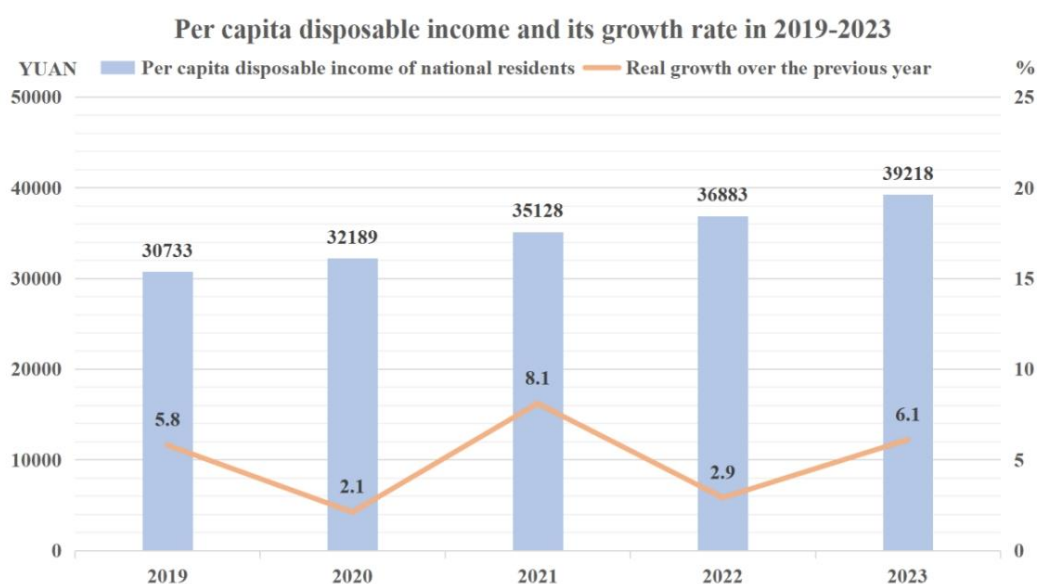
the output reaching 3.545 million and the sales reaching 3.521 million, which is close to the market situation in short supply to some extent (Feng & Xiong, 2022).

According to the statistics of the China Automobile Association, by 2021, the number of new energy vehicles in China will exceed 6.5 million, ranking first in the world. In order to ensure that the development of the new energy automobile industry is better transitioned to a market-driven one, the government has extended and optimized the purchase tax reduction policy for new energy vehicles twice in 2022 and 2023. Xu Wen, a researcher at the Chinese Academy of Financial Sciences, said in an interview that the continuation and optimization of the new energy vehicle purchase tax reduction policy is conducive to stabilizing market expectations, optimizing the consumption environment, further releasing the consumption potential of new energy vehicles, and expanding effective demand. The high-quality development of China's new energy vehicle industry cannot always rely on financial subsidies and preferential tax policies, Xu said. Through the gradual weakening of subsidy policies, promote the development of enterprises themselves, and then realize the market-oriented drive of the new energy automobile industry. Through the optimization of the purchase tax reduction and exemption policy for new energy vehicles, it can be seen that the optimized policy has more precise requirements for reduction and exemption, which will help expand the output and improve the quality of new energy vehicles. Both the national and local governments are actively introducing policies to improve the construction of supporting facilities related to new energy vehicles. In addition, by summarizing a series of policy contents issued by the state in 2023, we will find that the policy in 2023 has begun to transform. They focus more on the intelligent network connection of new energy vehicles, which is also an important direction for the future development of new energy vehicles.

4.2.2 Economy Analysis

With the continuous development of China's economy, the per capita disposable income of Chinese residents in 2019 was 30,733 yuan, and it has increased to 39,218 yuan by 2023. Although the growth rate of per capita disposable income has slowed down due to the epidemic, the overall income level is still increasing steadily. The gradual growth of residents' disposable income provides a good economic environment for the development of new energy vehicles, which also shows that consumers' purchasing power is becoming stronger and stronger.

Figure 11. Per capita disposable income and its growth rate in 2019-2023



Although China's overall car ownership has become the world's first, but from the data in the figure below, there is still a big gap with the developed countries in Europe, the United States and Asia. In 2022, the average number of cars per 1,000 people in China will only be 215, less than 1/3 of the United States and less than 1/2 of Japan, which indicates that there is still a large market space for China's auto industry. As the main development direction of the automobile industry in the future, new energy vehicles also have certain market potential.

Figure 12. Average population per 1000 people in major regions of the world in 2022

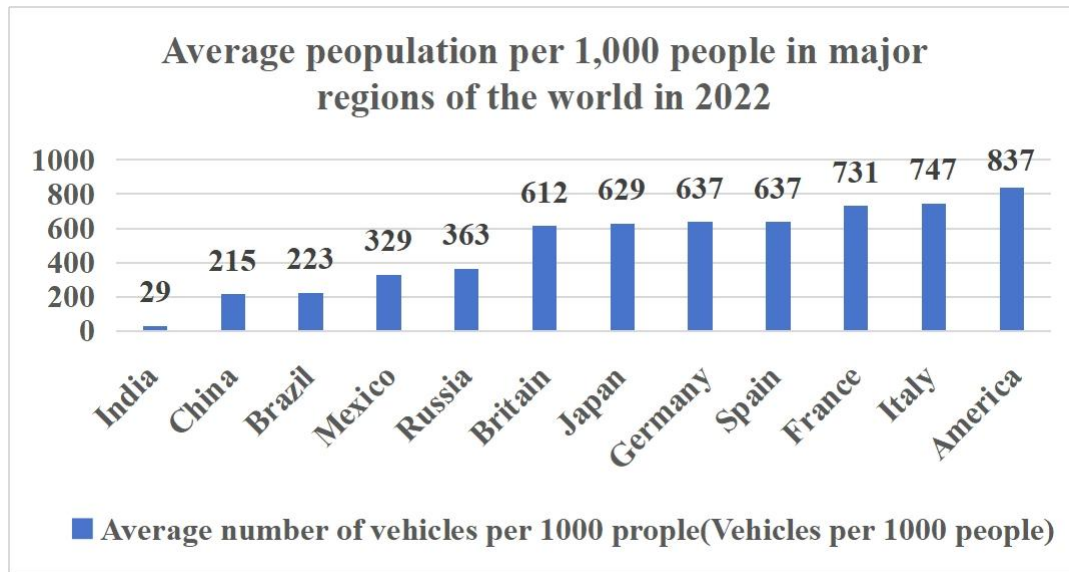


Table 4.1 Average car ownership per thousand people in China

	Average number of cars per 1,000 people in China	Average number of new energy vehicles per 1,000 people (including pure electric vehicles and plug-in hybrid electric vehicles)
2018	162	1.25
2019	174	2.22
2020	188	2.89
2021	202	4.35
2022	217	7.15

Source: China Association of Automobile Manufacturers

As can be seen from the above table, from 2018 to 2022, the average number of cars per 1,000 people in China has been increasing. Although the average number of new energy vehicles per thousand people is also increasing, it accounts for a small proportion of the overall number of vehicles. This shows that there are still many potential customers in the automobile consumer market that can be converted into

new energy vehicle consumers. From the above table, we can also find that between 2020 and 2022, the number of new energy vehicles has increased significantly. Although during this period, the impact of the epidemic made consumers more cautious about the consumption of bulk commodities, the sales volume of new energy vehicles continued to increase, which indicates that consumers are willing to buy green environmental protection products, as well as high consumption willingness and interest in new energy vehicles.

According to the information in the 2023 Statistical Yearbook of World Energy released by the Energy Institute, energy supply chain problems and the Russia-Ukraine conflict will have an impact on the global energy industry in 2022. Global energy prices are rising in 2022 due to market concerns about energy supply. After 2020, due to the impact of the epidemic and the Russia-Ukraine war, the price of oil (crude oil) has risen sharply, which also affects the consumption choices of residents. As oil prices continue to rise, many consumers are beginning to consider buying new energy vehicles that are cheaper than gasoline vehicles for daily use. In this context, new energy vehicles will be more competitive than fuel vehicles in the automobile consumer market.

4.2.3 Social Analysis

According to the Statistical Yearbook of World Energy, carbon dioxide emissions from energy consumption reached 39.3 billion tons in 2022, which is a historical high. Energy consumption accounts for 87% of global emissions. The Asia-Pacific region's share of total global carbon emissions in 2022 continues to increase. In terms of energy consumption, the daily driving of fuel vehicles consumes 25.5% of the world's total oil consumption, and road carbon emissions account for more than 80% of the total carbon emissions in the transportation sector. In order to better cope with climate change and reduce carbon emissions, China has proposed a "dual carbon" policy,

which is helpful to promote the upgrading of the automobile industry structure. The development of new energy vehicles and the promotion of new clean energy and renewable energy are of great significance in today's era of energy conservation and environmental protection. Compared with fuel vehicles, new energy vehicles have the characteristics of low carbon environmental protection, which is an important direction to achieve low carbon and sustainable development.

From our daily life, in addition to private cars, the popularity and utilization rate of new energy vehicles in all walks of life is high. For example: express trucks, logistics transport vehicles, government vehicles, taxis, network cars, etc., have been replaced from fuel vehicles to new energy vehicles. Some provinces are gradually implementing the use of new energy vehicles, such as Hainan Province. In the future, Hainan will ban the use of fuel vehicles and promote the use of electric vehicles in the province, the government policy said. This shows that the use of new energy vehicles is in line with the future development trend of society.

The earliest buyers of BYD new energy vehicles are mainly government and public institutions, and with the improvement of people's income and living standards, the proportion of individual users of new energy vehicles has gradually increased. Initial government incentives have led to increasing sales of new energy vehicles. However, after 2018, with the relative reduction of government subsidy policies, the price of buying new energy vehicles is high for consumers. Therefore, more factors need to be considered when consumers buy new energy vehicles.

In recent years, the sales of new energy vehicles are increasing, but compared with traditional fuel vehicles, the market share is still relatively small. At present, the main customer group of new energy vehicle consumption is individual users. Although the consumers' consumption concept has changed, there are still many concerns when buying new energy vehicles. First of all, for electric vehicles, the battery is undoubtedly the most important component. In the cognition of the majority of

consumers, they think that new energy vehicles are just like the electric bicycles we use every day. Therefore, the battery life time, whether it is convenient and fast to charge and change electricity, the cost of battery replacement and whether there will be a power failure halfway through the use process are the key issues of consumer concern, which is also the problem that people will encounter in the daily use of electric bicycles. Secondly, the driving performance and safety of electric vehicles, as well as whether electric vehicles retain value, are also factors that consumers will consider. In addition, changing policies also affect consumers' willingness to buy.

Compared with fuel vehicles, the development time of new energy vehicles is shorter. Therefore, the maintenance, insurance, repair and other services of new energy vehicles are not very perfect, which will make many consumers worry about the subsequent use, service and maintenance of new energy vehicles. To this end, Sheng Qiuping, Vice minister of Commerce, said that China will next study to reduce the insurance premium rate of new energy vehicles and improve the socialized maintenance service capacity of new energy vehicles to solve the worries of consumers buying cars.

From the market survey, it is not difficult to find that young people's acceptance and consumption willingness for new energy vehicles are higher than other age groups. As a new thing, new energy vehicles are loved by young people. For young people, they prefer personalized and differentiated products. Young people with financial ability will pay more attention to the recognition of the group when buying a car, no longer pay too much attention to the brand effect. With the continuous change of people's consumption concepts, people's pursuit of new energy vehicles is its own performance and driving experience, and the attention to the brand is not so high. As a result, the brand effect of traditional fuel vehicles has been weakened. When people buy fuel vehicles, they often focus on brand effect, price advantage and fuel consumption, and consider more endurance, intelligence and sense of science and technology when buying new energy vehicles. Therefore, intelligent, technological and personalized

new energy vehicles are more attractive to young consumers, which also brings a huge driving force to the smart car market. In addition, with the increase of national income, people's consumption demand upgrades as well. This makes consumers pay more attention to the quality of the car, high-end electric vehicles will be favored by consumers. Additionally, the impact of the epidemic on people's income level makes some consumers more willing to choose more cost-effective new energy vehicle brands and models because of their limited income level.

4.2.4 Technological Analysis

Based on the development and progress of society, the development of new energy vehicles in China has also entered a new stage. With the continuous development of intelligent economy, the future society will enter the intelligent era. Therefore, in the new stage of the development of new energy vehicles, intelligence is the main trend. Advances in new materials, artificial intelligence, big data, communication technology and other technologies have provided the technical foundation for the electrification and intelligence of new energy vehicles. The accelerated integration of new energy vehicles and advanced technologies has also promoted the transformative development of the automotive industry. Looking at the global automobile market, if China's new energy vehicles want to develop well, independent research and development, innovation awareness and ability are essential. In order to encourage automobile companies to commit to product research and development and key technological breakthroughs, the government has increased investment in this area, which will help guide enterprises to carry out independent innovation and further promote the improvement of innovation ability and product upgrading of new energy vehicle enterprises.

Through the study of the trend of the new energy vehicle industry, it is found that pure electric vehicles will remain the main direction of new energy vehicle enterprises in

the future. For pure electric vehicles, issues such as range, battery safety and replenishment technology still need to be solved. Moreover, the construction of supplementary energy facilities should also continue to improve. The limited range of pure electric vehicles is brought about by battery technology and replenishment technology. Although hydrogen fuel cells can be quickly charged in a short period of time, there are safety problems. Lithium battery as a common power supply method for new energy vehicles, people have improved the endurance of lithium battery through technical means. However, compared with fuel and hydrogen vehicles, there is still a big gap in driving range. In terms of recharge, most pure electric vehicles take about 45 to 60 minutes on a fast charge, while it takes up to 6 to 7 hours on a slow charge. This is still a large gap with the rapid replenishment speed of fuel vehicles in the way of refueling. This is caused by the special properties of the battery itself. This also makes it difficult for batteries to simultaneously take into account the characteristics of high charge and discharge rate, long life, high safety, high energy density and low price. In March this year, scientists at the Fraunhofer Institute in Germany developed a new cooling material, ultra-thin diamond film, which will make electric vehicles five times faster to charge. According to Wan Gang, chairman of the China Association for Science and Technology, all-solid-state batteries have become an important direction for the development of a new generation of power batteries. The all-solid-state battery has obvious advantages over the traditional liquid battery in energy density, safety, wide temperature range and high environmental adaptability. It can better meet the needs of new energy vehicles in all climates, all scenarios, and high safety use. As a battery manufacturer that occupies a large market share, Ningde Times also said that they attach great importance to solid-state batteries and increase investment in this area of research.

The rapid development of new energy vehicles has also increased the market demand for batteries. Therefore, battery technology and fast charging speed still need to be improved in the future. The fast charging of new energy vehicles should not only be achieved by improving battery technology, but also have a more perfect charging

infrastructure. With the increasing sales and market penetration of new energy vehicles, the popularization speed of charging infrastructure has not kept up with the growth rate of the use of new energy vehicles. In some cities with high market penetration of new energy vehicles, the proportion of new energy vehicles and charging piles is also a problem to be solved in the future.

According to the ownership of new energy vehicles at the end of 2023, about 20 million new energy vehicles will face the battery warranty expiration problem by 2032. After the battery warranty expires, the cost of replacing the battery will not be a small expense. Therefore, solving the battery life problem is also one of the issues that the new energy vehicle industry needs to pay attention to. In addition to battery technology, intelligent networking of new energy vehicles is also the main development trend of the industry in the future. Compared with fuel vehicles, the intelligent and connected characteristics of new energy vehicles improve the sense of science and technology of the car, and bring better driving experience to users. In the era of the gradual rise of intelligent economy, the intelligence of new energy vehicles helps to expand its competitive advantage over traditional vehicles.

4.3 Analysis of Industry environment

In the process of strategy formulation and development, enterprises need to use various methods to collect various aspects of information and make final decisions based on it. An in-depth understanding of the industry in which it operates will help companies assess their current strength and development. This section will help us understand the competitive landscape of the new energy industry through Porter's Five Forces model, the power of buyers and sellers, and the threat of industry entrants and alternatives. These are the factors related to the competitiveness of the company, and are of great significance to comprehensively improve the core competitiveness of the enterprise in the future market competition.

4.3.1 Bargaining power of supplier

At this stage, new energy vehicles are in the early stage of their start, and the number of suppliers in the industry is large, and the main suppliers are basically in a state of overall competition, so the industry is in a state of complete competition. At present, there is no monopoly phenomenon of dominant enterprises. For BYD, the competitive pressure brought by suppliers is weak due to the relatively low concentration of the supply of new energy vehicle parts and the self-sufficiency of power battery technology.

As early as 2003, when BYD entered the automobile industry, it began to lay out the NEV industry. Since the battery business was the main business at first, the field of NEVs is a new field for BYD, so the bargaining power with suppliers in the industry is relatively weak. In addition, NEVs are a new industry, and there is no relatively complete supply chain system in China, and most of the important parts and components required for production rely on imports. In order to reduce the cost of components and improve the technical level and production efficiency of the enterprise, BYD has carried out a comprehensive integration of the car supply chain. Its own brand advantages and a large number of procurement advantages make BYD stable and controllable in terms of raw material prices, quality and number of suppliers.

Suppliers mainly provide the company with intelligent/electronic and electrical components, chassis systems, thermal management systems, and body interior and exterior decoration. From the perspective of geographical distribution, there are basically BYD suppliers in all regions of China. This is because BYD implements the regional procurement method and tends to purchase nearby. In the selection order of the supplier's area, local suppliers will be given priority, and then the province, domestic and foreign countries will be considered in turn. Currently, BYD has more than 12,000 suppliers. The characteristics of supplier dispersion make the company

have a stronger ability to avoid risks. During the Shanghai epidemic in 2022, Tesla completely shut down production for 22 days, and BYD achieved sales growth by virtue of the advantages of decentralized suppliers.

4.3.2 Bargaining power of buyer

The buyers of new energy vehicles include individual consumers, enterprises, and governments. For BYD, whether individual users or consumers who buy in bulk, its bargaining power is constantly increasing. With the continuous development of the new energy vehicle industry and the progress of technology, the market competition will become more and more fierce, and the new energy vehicle brands in the industry will become more and more abundant. This means that consumers have more range and variety to choose from. When there are more products in the market, consumers will be less loyal to the brand.

Since cars are high-value consumer goods, consumers will consider a variety of factors when purchasing. For example: car purchase cost, product quality, after-sales service and so on. In addition, compared with fuel vehicles, potential consumers of new energy vehicles still have concerns about safety, range and warranty rate when making purchase decisions. As a result, they will be more cautious when buying cars. In addition, under the influence of the rapid development of the Internet economy, consumers can understand and experience various aspects of information about various brands of cars through the Internet or other online forms, including car performance, price, discount or evaluation. This helps consumers to compare and analyze various products, so as to choose the right car for them. In addition, the consumers' conversion cost when changing car brands is very low, which also makes consumers have strong bargaining power.

4.3.3 Threats of substitution

Substitutions to new energy vehicles mainly include traditional fuel vehicles, public transportation modes (buses, subways, etc.), electric vehicles and motorcycles, used cars, and new modes of travel (online car hailing, car sharing, etc.).

Compared with new energy vehicles, traditional fuel vehicles have a longer development time, so they have more advantages in terms of safety, stability and maintenance services. In addition, fuel vehicles use refueling as a way to replenish energy, which is more convenient for consumers to use. In the short term, the core technology problems of new energy vehicles and the imperfect supporting facilities cannot bring convenient use experience to consumers, which is also the disadvantage of new energy vehicles. In this case, traditional fuel vehicles as substitutes will pose a threat to new energy vehicles. However, with the continuous maturity of technology and the continuous improvement of supporting facilities, the threat of fuel vehicles will slowly diminish.

Public transportation modes such as buses, subways, electric vehicles and motorcycles also have a certain alternative role for new energy vehicles. Due to the limitations of these methods in terms of use time, use place and use scenario, they can not well meet the individual needs of consumers. Therefore, the threat to the sales market of new energy vehicles is small.

Due to the rapid depreciation of cars, for families with low incomes or pragmatic consumers, they will choose to buy used cars. With the continuous development of new energy vehicles, a lot of new energy vehicles have also appeared in the second-hand car market. However, the standards in testing and evaluation are not uniform enough, so the quality of second-hand new energy vehicles cannot be guaranteed in the transaction process. In addition, the battery has a shelf life, and the warranty rate of used cars is not high. Thus, the threat to the new car sales market of

used cars is weaker.

Influenced by the concept of sharing economy and the rapid development of the Internet economy, new modes of travel have been welcomed by the public, such as online car sharing and car sharing. The new mode of travel not only realizes green travel, but also has the advantages of environmental protection and energy saving. Although the new mode of travel can be regarded as a substitute for new energy vehicles, in essence, the main body of car buyers has changed from individual consumers to corporate consumers (bulk purchase users), which has not greatly affected new energy vehicles essentially.

4.3.4 Threats of new entry

In order to prevent the chaos of blind investment in the new energy vehicle industry, avoid repeated waste of resources, and maintain the order of industry development, the state has high requirements for the production qualification of new energy vehicles. The "New energy Vehicle Production Enterprises and Product Access Management Rules" promulgated in 2009 stipulates the entry threshold of the new energy vehicle industry. Subsequently issued the "Regulations on the Administration of Investment in the Automobile Industry (Draft for Comment)" further clarified and standardized the requirements for all aspects of new energy automobile enterprises, including production technology, after-sales service and safety assurance capabilities. The high access conditions of the new energy vehicle market, on the one hand, reduce the threat of potential entrants, on the other hand, is conducive to creating a better development environment.

New energy vehicle enterprises belong to the manufacturing industry, which not only requires a large amount of capital investment in the early stage of establishment, but also the subsequent research and development of new energy vehicles has high

requirements for the technical research and development ability of enterprises. In the context of the popularity of the sharing economy, the Internet and information technology have promoted the emergence of some new enterprises in the automotive field, which are known as "new forces of car making", such as: NiO, Li and so on. Compared with traditional auto companies that want to transform, these companies are smaller in size and weak in financial strength, which makes them seek cooperation with large auto companies to obtain financial and technical support. Taking NiO as an example, it has absorbed strong financial support through cloud services, car networking, autonomous driving technology and other advantageous technologies. With the support of a strong capital chain, NIO has also established cooperative relationships with many car companies and attracted more excellent technical talents to join. Therefore, the impact of "new forces" on the market cannot be underestimated. Although the new forces have advantages in pure electric technology and autonomous driving technology, they are still relatively weak in battery life. In this respect, BYD has the advantage of battery technology compared with them. As a typical traditional car company that has successfully transformed, BYD's technological advantages and strong capital chain make it seize the opportunity in the new energy vehicle market.

In addition to new players in the car industry, potential entrants in the market include multinational car companies. The potential and scale of China's new energy vehicle market has attracted many traditional foreign auto companies to enter China's new energy vehicle market, such as Volkswagen, Toyota, BMW, etc., which occupy a large market share in China. For the newly developed new energy automobile industry, the entry of these multinational car companies has caused no small impact on the market. Compared with them, China's traditional automobile enterprises have no advantages in terms of brand effect, or automobile manufacturing process and technology. Although their entry makes the industry more competitive, in the long run, in this environment, our car companies are more able to stimulate the development potential.

On the other hand, as the development trend of the automotive product market, many

traditional car companies have also started their new energy vehicle business. BYD, which is also a traditional car company transforming into a new energy car company, should pay attention to the advantages of traditional car companies, such as traditional car companies in the market and have a certain brand influence, customer base, marketing services, etc. If traditional car companies can increase investment in the research and development of new energy vehicle technology, coupled with its original advantages, it will be conducive to improving consumer satisfaction. This will affect BYD's market share.

Overall, factors such as production qualifications, capital needs, and technical capabilities have largely limited the number of potential entrants.

4.3.5 Competitive Rivalry

From the national development strategy, it is not difficult to find that new energy vehicles are an inevitable trend of future development. As the world's largest auto consumer market, China not only has many local manufacturers, but also has been favored by well-known foreign auto companies. Thanks to the national policies support, the development prospects of the industry are very good, and it also stimulates the market vitality. In the new stage of development, in order to obtain more profits, the competition in the industry will become more and more fierce. In order to better improve their competitiveness and meet the needs of customers, traditional car companies and emerging car manufacturers continue to launch a variety of new energy vehicle products through brand and service diversification, product differentiation and other strategies. In the new energy vehicle market segment, consumers have many choices.

Data survey results show that compared with the previous year, sales of new energy vehicles in 2021 increased by 108%. The market size has exceeded six million

vehicles, accounting for 90% of the market share. In 2022, the sales volume of new energy passenger vehicles in China reached 6.547 million. With a complete supply chain system and innovation capabilities, BYD has performed well in the market, with annual sales of more than 1.8 million vehicles. In addition, technology companies have also begun to develop new energy vehicle business, such as Huawei, Xiaomi, Baidu and so on. For technology companies, although there is a certain difficulty in cross-border car manufacturing, their technical capabilities can not be underestimated, which is also the key to the development of new energy vehicle business.

In early 2023, Tesla, NiO and other products have cut prices. Many companies are also constantly launching promotional activities, making many new energy vehicle companies forced to participate in the "price war". Tesla's multiple price cuts, in addition to the impact on the same level of models, but also make the entire new energy vehicle market competition more and more intense. In the new energy vehicle market, there will be a competitive situation in which international leading car companies, emerging forces, traditional car companies, and crossover car companies will jointly divide market share.

4.4 Analysis of Internal environment

4.4.1 Supply Chain Management

The "vertically integrated" supply chain has always been a major feature of BYD's supply chain. For more than 20 years, through the strong vertical integration capabilities of the supply chain, coupled with BYD's own technical and financial support in the fields of batteries and electronics, this vertically integrated management model has played a significant role in BYD's rapid development in the automotive industry. The vertical integration of industrial chain resources enables BYD to achieve closed-loop management in the manufacturing process, while reducing the production cost of NEVs. Under this supply chain model, except for common accessories such as glass and tires, all other components required for the production of NEVs can be

produced within the enterprise, and 70% of the production cost of the automobile is controlled within the enterprise. The advantage of this vertically integrated management model is that it enhances BYD's autonomy in innovation and development, and at the same time helps form a competitive advantage in the quality and cost of NEVs. Under BYD's vertically integrated supply chain management model, the automobile parts produced by the company are always in the stage of self-production and self-sale.

With the trend of global electrification and the rapid development of new energy technologies, the advantages of this closed-loop management mode gradually weaken. This mode no longer meets the requirements of economic development. In 2018, the chairman of BYD announced that "all technologies of the e-platform will be shared with global peers". Their supply chain system is from vertical integration to fully open.

The "vertical integration" supply chain system brings the advantages of quality and cost to the enterprise, and also promotes the integration and innovation of the enterprise; while the "open" supply chain model is in line with the development strategy of the market and the enterprise, the supply chain splits the part business to further improve the operating efficiency of the supply chain. The "open" supply chain management model is conducive to helping BYD horizontally integrate supply chain resources, promote strategic cooperation in the industry under the global trend of electrification, automation, and intelligence, and further realize the scale effect of the industry.

4.4.2 Technical Capability Analysis

At present, BYD's new energy core technology is in the leading position in the industry. With the further development of technology, in the future, NEV technology

will have the characteristics of better performance, lower cost and high stability. As we all know, BYD has always attached great importance to independent research and development and independent innovation of NEV technology, insisting on the development concept of “technology is king, innovation is the foundation”. From BYD's 2018-2022 annual report, it can be seen that its R&D expenditures are showing an overall upward trend, and the number of R&D personnel is also increasing. BYD is the only company in the world that possesses the core technology of the entire industry chain of NEVs. As far as BYD's current development stage is concerned, breakthroughs in key core technologies are the key to achieving sustainable growth.

4.4.2 Human Resource Analysis

According to the information disclosed in BYD's annual report, the company has more than 30,000 R&D personnel at present. Research and development funds totaled 8.534 billion yuan, up 36.21 percent from the previous year. In addition, the company also tends to recruit undergraduates, master students, and doctor students who graduated from excellent universities in China or overseas.

BYD also attaches importance to employees' development planning and growth space, providing employees with a various opportunities to learn and enrich themselves. At the same time, the company also pays attention to the physical and mental health of employees in high-pressure work environments. They encourage employees to exercise so that ensure work quality and efficiency.

4.5 Conclusion

To sum up, the external environment is favorable for the development of new energy vehicles. Among them, the advantages of policy subsidies are weakened, and the trend of market-driven development is obvious. In the new stage of development, achieving

breakthroughs in core technologies is particularly important for new energy vehicle companies to achieve sustainable development, and also helps maintain their competitiveness. New energy vehicles are the inevitable trend of national strategic development, and their market potential has also attracted various types of enterprises in addition to traditional car companies to enter the market. When there are more participants in the market, the competitive environment in the market will become more and more fierce.

For BYD, although the external competitive environment is fierce, it still has a competitive advantage in the new energy vehicle market by virtue of its relatively leading technical capabilities in the industry and its high market share.

CHAPTER 5: DISCUSSION AND IMPLEMENTATION

5.1 Introduction

This chapter examines BYD's place in the industry now and applies SWOT analysis to look into what has slowed down BYD's progress and how it can help the company expand in the future. This helps to understand China's current situation regarding new energy vehicles, covering what qualities should new energy vehicle firms have, what weaknesses could impede their growth, and what possibilities and challenges they face. Moreover, business-level competitive strategies are also discussed at the end of the chapter.

5.2 BYD SWOT Analysis.

Table 5.1 SWOT Analysis of BYD

<p>Strengths</p> <ul style="list-style-type: none"> • Robust research and development capabilities • Competence in battery manufacturing • Technology Superiority • Wide product portfolio • Positioned as a green commercial enterprise • Financial backing of Berkshire Hathaway • Availability of cheap but competent human capital • Sound financial position 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Overdependence on the domestic market • Dependence on Chinese government EV subsidies • Lower brand prestige in comparison to German and American automakers • Limited dealer network in emerging economies and the Middle East
<p>Opportunities</p> <ul style="list-style-type: none"> • Rising demand for affordable and long-range EVs • Untapped market of Commercial EVs (EV Buses and Trucks) • Marketplace growth in China and the rest of the Asian nations • Global shift from fossil fuels consumption to green energy • International market expansion • Increased relevance and 	<p>Threats</p> <ul style="list-style-type: none"> • Intense competition from Chinese domestic NEV manufacturers and traditional automakers shifting to EV manufacturing • Foreign exchange risk • Increased raw material cost • Legal and regulatory issues in Europe and the USA • Trade conflicts between USA and China • Israel-Palestine conflict, Russia-Ukraine war, and anticipated global economic slowdown

<p>popularity of electric vehicles</p> <ul style="list-style-type: none"> • Potential supplier of car batteries to European automakers • Strategic partnership for the expansion of the company's dealership in Asia • Expanding market for grid energy storage and backup power 	<ul style="list-style-type: none"> • Increased cybersecurity risks in connected EVs
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5.2.1 Strengths

- **Robust research and development capabilities**

BYD's enterprises on new energy vehicles as well as the promotion of the new energy vehicles technology not only have made it a frontier but also a leader in the international new energy vehicles sector. Last year, the R&D expenditures represented CNY5,629.4 million, which is typically 0.56 times higher than RMB4,989.4 million in the previous financial year (FY2022). The enterprise, which was previously investing in new energy cars had been reinforced through research and development ([Chen, Li, & Liu, 2024](#)). It also advanced the engagement of the business in new energy automobiles to satisfy the demand for these cars. As a result, BYD was able to establish strong bases of technological superiority and novel model introduction as well as increase its battery production capacity ([Wen, 2023](#)). Maturing in FY2019, the company and Toda undertook an equity joint venture for the foundation of an R&D company for only electric vehicles.

- **Competence In Battery Manufacturing**

The next-generation energy business of BYD not only involves the R&D but also the production of batteries which falls under its wings. In 2020, BYD became the first company in the world to start producing its core technology, called the Blade Battery. Increasing the battery capacity, this battery can power up a range of at least 600

kilometers on a single charge and can endure more than 3000 discharges or charge cycles easily. On top of this, its main and significant power is a much bigger safety ([Qiu, Zhang, & Zong, 2022](#)).

- **Technology Superiority**

As opposed to just not letting the fuel cell combust itself on random occasions, while the old battery is only responsible for it. On 13 November 2020, the DM-i technology with Xiaoyun engine, a plug-in hybrid electric vehicle (PHEV), was launched by BYD. The latest most thermally efficient 1.5L globally plug-in hybrid GT engine with a brake thermal efficiency of 43% is this new BTE-efficient engine. BYD relies on its technical know-how of all the areas it is involved and develops corresponding core technologies ([Hong, Li, Li, & Wei, 2023](#)). Over its entire history, BYD has made several patents up to 26,671 on the list, leading China's first-place products.

- **Wide Product Portfolio**

The diversification of BYD extends across the domains of electric vehicles, solar cells, electronics foundry, battery energy storage systems, and the like. The rich BYD product portfolio (electric vehicles, batteries, solar panels, energy storage systems, 'Total Solutions' for eMobility, and monorails) provides an opportunity for a diversity of product lines, therefore being able to move away from the dependency on sales of a single product ([Zhu, 2023](#)).

- **Sound Financial Position**

Through the diversification of their revenue sources and marketing campaigns, companies can minimize their exposure to a specific product or market. For BYD, the specialist electronics foundry subsidiary commands greater stability compared to the electric car, which is represented by the core business. It gives BYD the chance to be engaged in different businesses and it surely helps to strengthen its income the revenue. BYD financing channels have been perfect all along. In 2021, BYD closed down its two funding rounds for its semiconductor business, thus offloading a great number of famous investors and industrial capitals. After the two rounds of financing,

the value of the semiconductor business of BYD is equivalent to 10.2 billion yuan in the end ([An, 2021](#)).

- **Positioned As a Green Commercial Enterprise**

BYD has a green enterprise in China manifesting itself with specific figures and data. By the end of 2023, the Chinese market shows that the EV sales of companies constitute a whopping 30% of the total market share of EVs in the country ([Wang, 2023](#)). This impressive market dominance which testifies to BYD's high level of commitment to sustainability as well as the pioneering role in the development and implementation of green transport technologies is explained by this.

- **Financial backing of Berkshire Hathaway**

Also, operating via its parent company Berkshire Hathaway, BYD benefits from the financial strength that serves its company as the basis for further growth and creation. In the year 2022, the beginning of the capital investment of Berkshire Hathaway in BYD came up to \$2 billion and this amount served as a backbone in driving the BYD's expansion process and growth. The partnership is not only consolidating BYD's brand power but also builds the company's reliability and goes far in China's highly competitive market ([Liu, 2023](#)).

- **Availability of Cheap but Competent Human Capital**

Besides, BYD also enjoys access to a tremendous manpower capital whose workforce is skilled and cheap in China. With its eminent workforce efficiency owing to its high competence, BYD is a key reason for the 85% employee retention rate as of 2023, which is a catalyst in driving innovation and sustaining high operational proficiency ([Feng, 2024](#)).

5.2.2 Weaknesses

- **Overdependence on the domestic market**

The Chinese electric vehicle giant, as depicted in the image below in Figure 01, derived as much as 70.43% of its revenue from its home market in 2021. The

following year, this dependence climbed to 78.43%. The company’s excessive reliance on its domestic market raises concerns about its long-term viability and worldwide aspirations and poses a potential vulnerability.

Figure 13: BYD revenues in 2021 and 2022 (Liu, 2023)

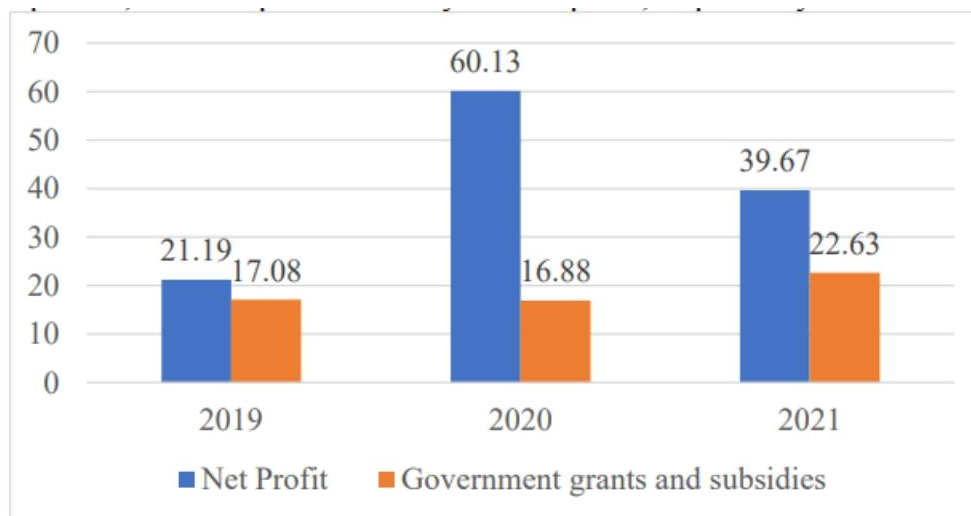


- **Dependence on Chinese government EV subsidies**

One of BYD’s drawbacks, as seen in Figure 2 of its annual report, is its over-reliance on the Chinese market. It is not only harmful to BYD’s growth on the global stage, but it is also vulnerable to changes in domestic economics and policy. BYD is heavily reliant on government assistance. Government subsidies totaling CNY 2.3 billion were received by BYD in 2021, according to its 2021 Annual Report. These subsidies made up almost 57% of the company’s net income. Local government purchases of firms are another way that the government supports BYD. Leading the industry, BYD’s financial assistance income is RMB2,263 million, RMB1,678 million, and RMB1,678 million, which represent 91.94 percent, 39.63 percent, and 74.3 percent of the company’s current profit and loss for 2019–2021 (Feng, 2024).

Figure 14: The Data of Government Grants and Subsidies and Net Profit on BYD

from 2019-2021 ([Feng, 2024](#))



- **Lower brand prestige in comparison to German and American automakers**

BYD has a reputation problem as the brand competes with the strong legacy brands of Germany and America, as records show that there is a marked difference in brand recognition between the two. A study conducted among Chinese consumers last year showed that just 20% of them link the BYD to premium or high-classed motors while BMW and Mercedes Benz reached 60% and 55% respectively as premium brands ([Yang, 2024](#)). This disparity makes clear that BYD is not always able to raise its image to the brand level, which would enable it to struggle on an equal basis with the global automotive industry leaders.

- **Limited dealer network in emerging economies and the Middle East**

In the case of emerging economies and the Middle East, a comparative analysis reveals that the lack of BYD dealers becomes one of the most noticeable weaknesses of the company. Now, it is 2023 and the depiction of BYD in such a marketplace may be considered a limited one, with only fifty retail outlets existing in key emerging markets like India, Brazil, and South-East Asia. On the contrary, the dealer network of competitors like Toyota and Hyundai is regarded as one of the factors partly contributing to their dominance in the two regions because their vast network is more than 200 outlets in both regions while in contrast, BYD has not managed to establish a good distribution infrastructure in the regions ([Zhu, 2023](#)). Barriers are hindering

BYD's strategy for entering and claiming market share in fast-growing areas. This means it may be possible for it to expand globally but without the competitive advantage.

5.2.3 Opportunities

- **Rising demand for affordable and long-range EVs**

The ever-growing desire for inexpensive and long-range EVs has got BYD moved by an unbearable longing, particularly in China, where EVs under \$30,000 priced, dominated the market, accounting for 60% of the overall EV sales in 2023. Worldwide, the sales of EVs with a long range in particular rose by 70% year on year to the end of 2022, hence pointing to the most likely direction towards the future of electric vehicles for consumers.

- **The untapped market of Commercial EVs (EV Buses and Trucks)**

To the point, a commercial EV market, though, is as yet untapped. In 2023th year, China sold 200,000 electric buses that are powered by batteries with the BYD occupying 45% of the market segment. The worldwide provision of electric commercial vehicles is set to hit a value of \$150 billion by 2028 featuring a 22% compound annual growth rate (CAGR) between the periods of 2023 – 2028 ([Zheng, 2024](#)).

- **Marketplace growth in China and the rest of the Asian nations**

The development of the Chinese and other Asian markets only pinpoint the chance for BYD's future. Sales of consumer goods in China, by retail of 80%, showed an upward 8.5% when compared to the same period in 2022, portraying a high purchasing power consumer market that has the appetite for EV uptake.

- **Global Shift from Fossil Fuels Consumption to Green Energy**

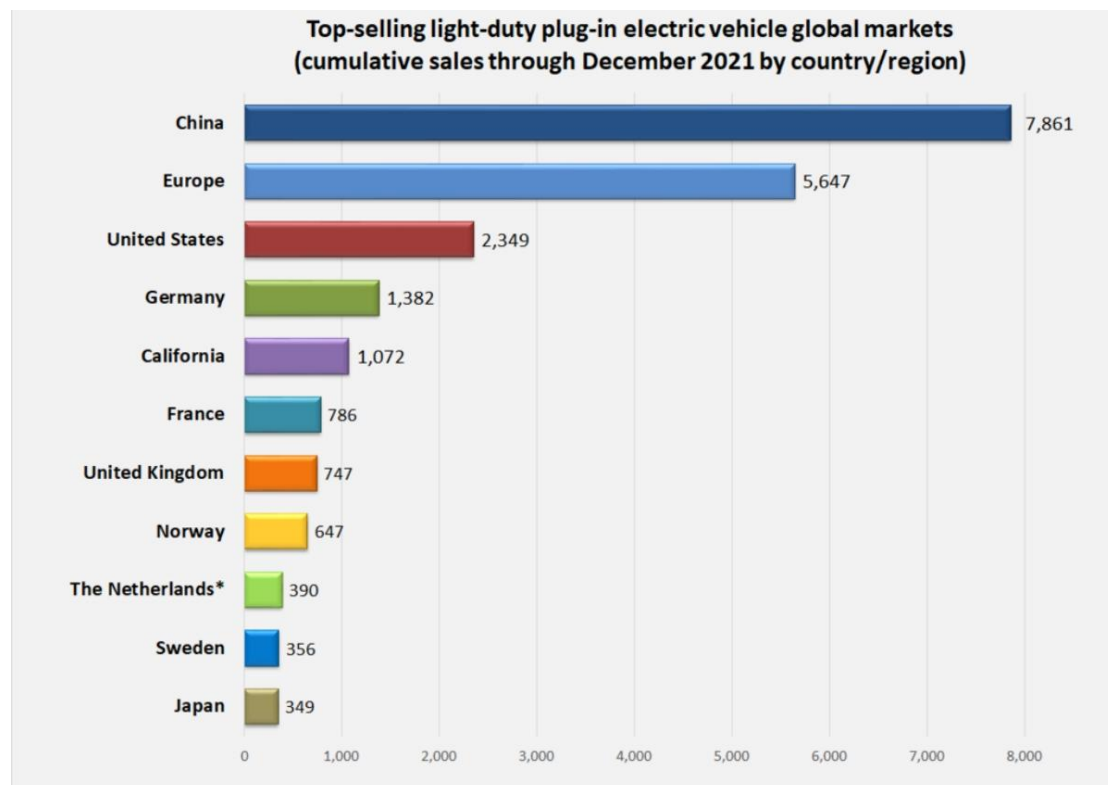
Besides going with a postulated plunge of the international sources of fossil fuels consumption to renewable energy, the company also has a chance to spread its

business horizons. In 2022, at the level of \$1.5 trillion the whole world was invested in environmentally friendly energy, showing that the transformation in the direction of renewable sources of energy had been very significant. BYD, whose excellence in EVs and energy storage (Liu, 2023), will secure its place among the pioneers to benefit from the rising global trend in green automobiles.

- **International Market Expansion**

Not only this, but the overseas market goes from being some local business to a domain that accounts for about 20% of total sales revenue for BYD in 2023. Through the deepened importance and widespread acceptance of electric vehicles across the world, BYD stands a chance to well execute its plans.

Figure 15: Growing Demand of NEVs in International Market (Arkhipov, 2023)



- **Increased Relevance and Popularity of Electric Vehicles**

Presently the gradual development of electric vehicles (EVs) and their growing adoption by consumers aligns well with BYD's position in the market. In China EV

sales skyrocketed by 90% in 2022. The number of sales for EVs totaled 20% of the sales of cars in the country. The BYD Company, as the main EV maker in China, could reap these trend's advantages with the sales growth of its electric vehicles which was 65% in that year ([Chen, et al., 2024](#)).

- **Potential Supplier of Car Batteries To European Automakers**

Sales of EVs skyrocketed in China growth by 90 in 2022, which represented 20% of overall vehicle sales. BYD, therefore, goes beyond being a mere European car battery supplier; as Europe speeds up in leaving room for more electric vehicles on the road, it creates other possible markets for BYD's batteries ([Feng, 2024](#)).

- **Strategic Partnership for the Expansion of the Company's Dealership in Asia**

The business still sees strategic initiatives as an essential component of its expansion plan. These strategic initiatives aim to increase growth, broaden the company's product and technology offerings, and broaden its geographic reach. To offer green transportation options to F Village, BYD and Hokkaido Nippon-Ham Fighters formed a strategic cooperation in December 2020 ([Feng, 2024](#)). The company would supply a variety of emissions-free goods as part of this partnership, such as pure electric buses and forklifts. The players and visitors would be transported throughout F Village by pure electric buses. A joint venture agreement was signed in October 2020 by BYD Auto Industry, a subsidiary of the firm, and Hino Motors Ltd. to establish a new company dedicated to the development of commercial battery electric cars ([Hong, et al., 2023](#)).

- **Expanding Market for Grid Energy Storage and Backup Power**

The multi-sector grid energy storage and emergency power supply areas will offer BYD an enticing prospect. Countries invest in renewable energy infrastructure as they increase the capacity of the grid through Smart technologies because there is a need for energy storage to manage the unpredictable energy supply and demand. Battery specialists like BYD are likely to lead here since they provide great energy storage solutions, which fit the market situation perfectly ([Liu, 2023](#)). In 2023 Worldwide

institutional framework for grid energy storage systems sales had reached \$10 billion. Asia-Pacific became the major market region. BYD's inventive solutions which extend to its lithium-ion battery for microgrid storage integration and backup power from global-scale installations and everything in between, give reliable and/or scalable grid stabilization options ([Liu, 2023](#)).

5.2.4 Threats

- **Intense competition from Chinese domestic NEV manufacturers and traditional automakers shifting to EV manufacturing**

By 2023, the Chinese NEV market became the arena for more than 400 competitors, which aggressively advertised their products to get traffic. Domestic manufacturers such as Geely and NIO added mass-producing EV skillsets to their business, and as a result, BYD's grip on the market loosened. The rise of rivalry and pricing tension gave rise to producers like BYD being squeezed out of high-profit margins.

- **Foreign Exchange Risk**

Currency changes raise a strong alarm bell for BYD for its international operations. The 10% depreciation of the Chinese Yuan to the U.S. dollar in 2023 led to an estimated \$100 million trade deficit in overseas revenue for BYD. Policies like indexing and portfolio dressing are key in reducing the effect of fluctuating foreign exchange rates.

- **Increased Raw Material Cost**

Genuine origination costs, from the areas such as lithium, cobalt, and nickel may result in the higher production cost of EV makers such as BYD. In the year 2023, the price of lithium carbonate reached 50% more than thought originally and this directly impacted the profitability of BYD ([Wang, 2023](#)). A focus on sourcing agreements and substitutes contributes significantly to the efforts aimed at cushioning the falling profits in the automotive industry.

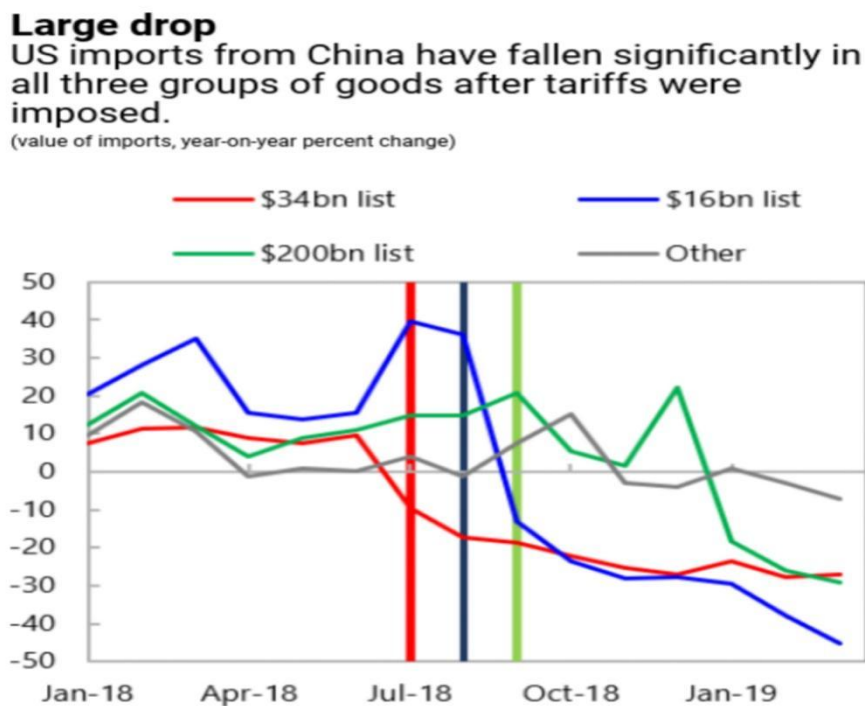
- **Legal and regulatory issues in Europe and the USA**

The supranational bodies such as the European Union’s treaties and industry standards, and the US trade regulations constrain BYD’s access to bigger markets. The regulatory scrutiny of vehicle emissions and safety standards among Europeans in 2023 was the main reason for the delays in the market introduction of BYD in the European, Indian, and Chinese markets. On the other hand, pace cooperation with authorities, and full embrace of legal regulation are the keys to the expedient realization of these tasks.

- **Trade conflicts between the USA and China**

The increasing inflammatory trade conflict between China and the USA caused ripples which made BYD’s supply chain and market access threatened. The harsh tariffs on imported Chinese goods that went into force by the USA in 2023 have been an issue for BYD since they raised production costs and made it hard for BYD to win the market ([Yang, 2024](#)).

Figure 16: US-China Trade War and fall in US import from China



- **Israel-Palestine conflict, Russia-Ukraine war, and anticipated global economic slowdown**

Political tensions that involve regional wars such as the Israel-Palestine conflicts and the Russia-Ukraine war, along with a forecast of a global economic downturn, present risks for BYD in achieving sales and investment targets. The probability of a forecasted recession in 2023 can lead to lower consumer demand for EVs which will ultimately decrease BYD’s revenue projected (Zheng, 2024).

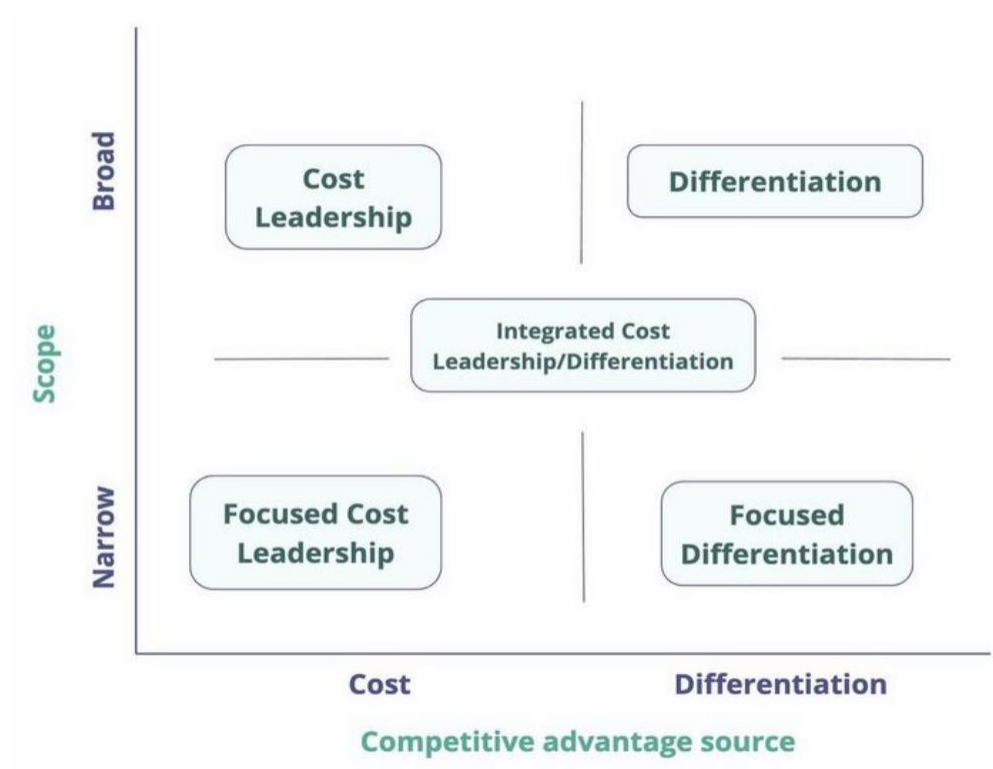
- **Increased cybersecurity risks in connected EVs**

There is a higher risk of breaching cybersecurity in EVs that employ networked functionalities. An occurrence of a cybersecurity breach at a competitor EV manufacturer with linked vehicles in 2023 shattered public trust and damaged the company’s reputation.

5.3 Business-Level Competitive Strategies

At its business level, BYD applies the competitive strategies of Cost Leadership and Differentiation to help maintain its market position as given in Figure 17.

Figure 17: Business-Level Competitive Strategies (Wen, 2023)



5.3.1 Cost Leadership Strategy

By keeping the Cost Leadership strategy, BYD can make its products cheaper than its competitors but ensures that such products are of decent quality. This year, BYD's continuous improvement of cost efficiencies led 15% cutback of the production cost of their EVs; as such, they can be afforded, being priced reasonably, by price-conscious consumers. This cost advantage enables BYD to seize a considerable portion of China's electric vehicle market where price-sensitive customers are predominant ([Yang, 2024](#)). BYD has seen to it that virtual integration is valued where it is mainly able to control different stages of the supply process and lower its procurement expenses. Moreover, this business has employed up-to-date manufacturing methods that include robotics and automation to improve operations effectively and attain low labor costs. So when the costs are taken into account, each unit of BYD's electric vehicles is less expensive than most of its competitors, therefore BYD can still profit while keeping the prices highly competitive for their customers.

5.3.2 Differentiation Strategy

BYD applies a Differentiation strategy to differentiate the company's offerings from those offered by rivals and, in this way, create distinct value for customers. The key area for BYD to differentiate its electric vehicles from others is through the integration of innovation and technology that gives it the edge over competitors. For example, in the year 2023, BYD unveiled the new electric vehicle model which featured advanced autonomous driving functions. Many industry experts have acknowledged this model and praised it at the same time ([Zheng, 2024](#)). This leads to the differentiation of products for BYD and thus, its products are offered at a premium which in turn, contributes to higher profit margins and brand loyalty among those who want high-quality products. This strategic attitude is the key to BYD's leadership not only in the Chinese market but also in those regions where people buy pioneering and premium quality products.

To illustrate, the BYD Tang SUV can cover a driving distance of more than 300 miles (over 450 km) on a single charge, which is more than the competitors in range. Furthermore, BYD has embarked on partnerships with key technology companies including Huawei and Xiaomi, to give it the capability to achieve cutting-edge connectivity and smart technology, which consequently makes the cars even more appealing to tech enthusiasts ([Zhu, 2023](#)). BYD distinguishes itself via these differentiated product offerings and manages to attract a unique customer base, comprising of individuals who are driven by novelty and environmental-related sustainability, consequently enhancing the company's position in the market.

5.4 Implementation

5.4.1 Implementation Plan for Cost Leadership Strategy

Implementing an approach to cost leadership needs to be well organized to cut costs without sacrificing the quality of product in question and hence competitiveness. For BYD, the following practical steps can be taken: For BYD, the following practical steps can be taken:

- **Supply Chain Optimization**

BYD should do a complete study on the value chain of the business to find out the areas where one can reduce the cost and increase efficiency. Company should get favorable contractual agreements from suppliers and this will ultimately lead to lowering prices for raw materials and components. BYD should adopt the just-in-time inventory management techniques to keep holding costs of inventory recourse at the lowest point.

- **Operational Efficiency Improvements**

To reduce the operational cost, BYD should streamline production processes to get rid of waste and have a smooth running of the machines. The company should increase the investment in automation and technology for labor cost lowering and operation

improvement ([Zhu, 2023](#)). Coupled with that, BYD should implement lean manufacturing principles to focus on material flow and energy consumption to shorten the production cycle time.

- **Cost Reduction Initiatives**

To implement the cost leadership strategy, BYD should determine the zones where there is no value-adding spending and apply cost-cutting measures, savings, and resource optimization. The company should make cost-benefit analyses an integral part of the inspection regime to regularly assess the attainability of cost-saving actions ([An, 2021](#)). To achieve this, BYD should utilize employees from all departments to come up with ideas for cutting costs and learn to accept new ideas as time goes on.

- **Economies of Scale**

BYD should enhance production volume to gain an advantage from the economies of scale and a broader base for spreading the fixed costs. The company should adapt the strategies like increasing target markets, creating a bigger share of the market, and advocating the use of production capacity effectively. In addition, BYD should invest in research and development that advance standardized components and processes that are suitable for product line revision ([Arkhipov, 2023](#)).

- **Continuous Monitoring and Improvement:**

An important metric for this task is key performance indicators (KPIs), as they can highlight both the overall cost performance and the progress toward cost reduction goals. BYD should Organize periodic fiscal comparisons with the industry competitors to understand the best practices and potential areas for improvement ([Chen, et al., 2024](#)). The company should promote a culture that embraces the best and never-ending improvement and innovations which will help to realize cost effectiveness.

5.4.2 Implementation Plan for Differentiation Strategy

- **Market Research and Analysis**

To differentiate its products and services, BYD should go for market research to identify the needs, deficits in the market, and new trends that will help attract more customers. The company should distinguish the key areas of differentiation where BYD could offer value other competitors do not do to position the products against competition.

- **Product Innovation and Development**

The company should spend on research and development to help BYD build a diverse product range that is technologically advanced with creative elements and distinctive features, making its brand stand out in the marketplace. BYD should collaborate with such partners as industry partners, suppliers, and technology experts to have early access to their expertise and advance product innovation ([Feng, 2024](#)). BYD should make innovations with customers launching repeatedly new products or product variants, which give unique value propositions to target customer segments.

- **Branding and Marketing**

BYD should cultivate a robust brand personality and its communication system that tells the essential BYD's core values and sustainability attributes. The company should feature a stand-out of business in the marketing materials which are advertising, website content, and product packaging, to highlight where the BYD differs from its competitors

- **Customer Experience Enhancement**

BYD should create a high level of customer engagement with the provision of superior experiences that match both the BYD brand promise and differentiation strategy ([Feng, 2024](#)). The company should encourage clients to provide input so you can ultimately change or upgrade EVs according to their tastes, specifications, and aspirations.

- **Strategic Partnerships and Alliances**

To differentiate its products and services, BYD should develop strategic joint ventures

with like-minded companies or organizations that can help in enhancing or diversifying BYD's current products or entering into alternative markets. The company should team up with the head of industry or any other influencer to endorse the BYD products and ensure that our products and services are differentiated ([Hong, et al., 2023](#)). BYD should research the option of collaborating with partners who are well-known in industry to take advantage of the reputation and expertise of such partners such as Nio (NIO), Li Auto (LI), Tesla, Xpeng (XPEV), Rivian (RIVN) and Lucid (LCID) ([Liu, 2023](#)).

- **Continuous Improvement and Adaptation**

BYD customer relationship team should follow the market habits, customer preferences, and another firm to convert the differentiation strategy of BYD into the market needs. The company should enable improving and updating products and services to stay on top of current and be ahead of the competition. BYD should keep to be responsive and agile to all evolution in the marketplace and customers' needs as well as be future-oriented to avoid being stagnant over time ([Liu, 2023](#)).

References

- Arkhipov, A. (2023). COMPETITION AMONG THE AUTOMOTIVE COMPANIES IN THE ELECTRIC CAR INDUSTRY. *Хроноэкономика*(1 (39)), 4-6.
- An, T. (2021). *The Strategic Group Analysis of BYD New Energy Vehicles From the Perspective of Value Chain*. Paper presented at the 6th Annual International Conference on Social Science and Contemporary Humanity Development (SSCHD 2020).
- Aka, K. G. (2019). Actor-network theory to understand, track and succeed in a sustainable innovation development process. *Journal of cleaner production*, 225, 524-540.
- Alanazi, F. (2023). Electric vehicles: benefits, challenges, and potential solutions for widespread adaptation. *Applied Sciences*, 13(10), 6016.
- Beamish, P. W., & Chakravarty, D. (2021). Using the resource-based view in multinational enterprise research. *Journal of Management*, 47(7), 1861-1877.
- Boxcar-Admin. (2021, November 24). *How China put nearly 5 million new energy vehicles on the road in one decade*. International Council on Clean Transportation.
<https://theicct.org/how-china-put-nearly-5-million-new-energy-vehicles-on-the-road-in-one-decade/>
- Cao, L., Deng, F., Zhuo, C., Jiang, Y., Li, Z., & Xu, H. (2022). Spatial distribution patterns and influencing factors of China's new energy vehicle industry. *Journal of cleaner production*, 379, 134641.
- Chen¹⁴, R., Jing¹⁵, C., Yingjie¹⁶, F., & Ziji¹⁷, W. (2023). Comprehensive analysis and forecast of Chinese NEV industry development from 2012 to 2025. *FORESIGHT IN RESEARCH*, 105.
- Chen, D., Wang, G., Yuan, Z., & Zhang, E. (2023). Study on the Spatial Pattern and Influencing Factors of China's New Energy Vehicle Industry—Based on Data of Relevant Listed Companies from 2008–2021. *Sustainability*, 15(4), 3058.

- Cho, M.-J., & Shin, J. (2022). Identifying a combination of key resources to overcome the entry barriers in the electric vehicle market. *IEEE Access*, 10, 60373-60386.
- Counterpoint. (2023). *Global EV sales up 32% yoy in Q1 2023 driven by Price War*. <https://www.counterpointresearch.com/insights/global-ev-sales-q1-2023/>
- Chen, S. L., Li, W., & Liu, Y. (2024). Analysis on the Development, Sales and Development of New Energy Vehicles by BYD Company. *Highlights in Business, Economics and Management*, 24, 1660-1666.
- Cao, L., Deng, F., Zhuo, C., Jiang, Y., Li, Z., & Xu, H. (2022). Spatial distribution patterns and influencing factors of China's new energy vehicle industry. *Journal of cleaner production*, 379, 134641.
- Dai, R. (2020). *The Analysis of Tesla's Competitive Strategy for the Chinese Market*. The University of Nottingham, (199).
- EV-Volumes. (2023). *Global EV sales for 2022*. EV. <https://www.ev-volumes.com/news/global-ev-sales-for-2022/>
- Feng, B. (2024). Research on Financial Competitiveness of Listed Companies in the New Energy Vehicle Industry: Analysis on BYD. *Highlights in Business, Economics and Management*, 27, 60-67.
- Fang, K., Li, C., Tang, Y., He, J., & Song, J. (2022). China's pathways to peak carbon emissions: New insights from various industrial sectors. *Applied Energy*, 306, 118039.
- Guan, D., Peters, G. P., Weber, C. L., & Hubacek, K. (2009). Journey to world top emitter: An analysis of the driving forces of China's recent CO2 emissions surge. *Geophysical Research Letters*, 36(4).
- Muntean, M., Guizzardi, D., Schaaf, E., Crippa, M., Solazzo, E., Olivier, J., & Vignati, E. (2018). *Fossil CO2 emissions of all world countries*. Luxembourg: Publications Office of the European Union, 2.
- Hong, S., Li, R., Li, Z., & Wei, M. (2023). Analysis of BYD's Overseas Marketing Strategy based on 4P Theory. *Highlights in Business, Economics and Management*, 19, 484-490.

- Jiang, C., & Liu, D. (2024). Effects of venture capital on green technology innovation in new energy vehicle industry in China. *Energy & Environment*, 35(1), 418-437.
- Kong, C., Men, F., & Sun, T. (2021). Research on industry situation changes and development strategies of new energy automobile companies. In *E3S Web of Conferences* (Vol. 272, p. 01024). EDP Sciences.
- Kalaitzi, D., Matopoulos, A., & Clegg, B. (2019). Managing resource dependencies in electric vehicle supply chains: a multi-tier case study. *Supply Chain Management: An International Journal*, 24(2), 256-270.
- Kamal, S. (2019). Research paradigm and the philosophical foundations of a qualitative study. *PEOPLE: International Journal of Social Sciences*, 4(3), 1386-1394.
- Liu, B. (2023). *Analysis of the Reasons for the Development of the New Energy Vehicle Industry and Prospects—Taking BYD as an Example*. Paper presented at the International Conference on Economic Management and Green Development.
- Lai, Y., Li, D., Luo, Y., & Wu, G. (2023). Analysis of Enterprise Valuation and Future Development Trends of BYD Company. *Highlights in Business, Economics and Management*, 19, 440-449.
- Li, J., Zhang, J., & Zhao, Z. (2020). *Analysis of Rapid Demand Variation in Electric Vehicle Industry based on Innovation Diffusion Theory*. Paper presented at the IOP Conference Series: Earth and Environmental Science.
- Liang, Y., & Lu, H. (2022). Dynamic Evaluation and Regional Differences Analysis of the NEV Industry Development in China. *Sustainability*, 14(21), 13864.
- Liu, Z., Sun, T., Yu, Y., Ke, P., Deng, Z., Lu, C., ... & Ding, X. (2022). Near-real-time carbon emission accounting technology toward carbon neutrality. *Engineering*, 14, 44-51.
- Liu, L., Zhang, T., Avrin, A.-P., & Wang, X. (2020). Is China's industrial policy effective? An empirical study of the new energy vehicles industry. *Technology in Society*, 63, 101356.

- Matta, C. (2022). Philosophical paradigms in qualitative research methods education: What is their pedagogical role? *Scandinavian Journal of Educational Research*, 66(6), 1049-1062.
- Muench, C., Benz, L. A., & Hartmann, E. (2022). Exploring the circular economy paradigm: A natural resource-based view on supplier selection criteria. *Journal of Purchasing and Supply Management*, 28(4), 100793.
- Moore, C., & Cook, J. (2023, June 26). *Highlighting the rapidly changing picture in the global competitive landscape for electric vehicles as transformative M&A continues*. Alvarez & Marsal | Management Consulting | Professional Services. <https://www.alvarezandmarsal.com/insights/highlighting-rapidly-changing-picture-global-competitive-landscape-electric-vehicles>
- Muzari, T., Shava, G. N., & Shonhiwa, S. (2022). Qualitative research paradigm, a key research design for educational researchers, processes and procedures: A theoretical overview. *Indiana Journal of Humanities and Social Sciences*, 3(1), 14-20.
- Oztemel, E., & Gursev, S. (2020). Literature review of Industry 4.0 and related technologies. *Journal of intelligent manufacturing*, 31(1), 127-182.
- PRTM Management Consultants, Inc. (2011, April). The China New Energy Vehicles Program – Challenges and Opportunities [PDF]. World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/2355/9780821387009.pdf?sequence=4&isAllowed=y&redirected=true&ads=false>
- Quan, X. I., Loon, M., & Sanderson, J. (2018). Innovation in the local context: A case study of BYD in China. *International Journal of Innovation and Technology Management*, 15(02), 1850017.
- Qiu, Y., Zhang, K., & Zong, Y. (2022). *The Market Analysis for BYD*. Paper presented at the 2022 2nd International Conference on Financial Management and Economic Transition (FMET 2022).
- Qu, Y. (2023). The Advantages of Supply Chain Integration in Electric-vehicle Industry: Evidence from BYD. *Highlights in Business, Economics and Management*, 7, 179-185.

- Ryghaug, M., & Skjølvold, T. M. (2023). How policies and actor strategies affect electric vehicle diffusion and wider sustainability transitions. *Proceedings of the National Academy of Sciences*, 120(47), e2207888119.
- Sławecki, B. (2018). Paradigms in qualitative research. *Qualitative Methodologies in Organization Studies: Volume I: Theories and New Approaches*, 7-26.
- Sanguesa, J. A., Torres-Sanz, V., Garrido, P., Martinez, F. J., & Marquez-Barja, J. M. (2021). A review on electric vehicles: Technologies and challenges. *Smart Cities*, 4(1), 372-404.
- SNS Insider. (2023). *Electric vehicle fluids market share global analysis 2030*. Electric Vehicle Fluids Market Share Global Analysis 2030. <https://www.snsinsider.com/reports/electric-vehicle-fluids-market-2656>
- Shen, S., & Shirouzu, N. (2013, November 22). Electric vs. Hydrogen: China Is Battleground for Auto Giants. Reuters. <https://www.reuters.com/article/us-autos-china-electric-insight/electric-vs-hydrogen-china-is-battleground-for-auto-giants-idUSBRE9AL0BQ20131122>
- Shan, Y., Guan, D., Zheng, H., Ou, J., Li, Y., Meng, J., ... & Zhang, Q. (2018). China CO2 emission accounts 1997–2015. *Scientific data*, 5(1), 1-14.
- Shan, Y., Huang, Q., Guan, D., & Hubacek, K. (2020). China CO2 emission accounts 2016–2017. *Scientific data*, 7(1), 54.
- Wang, Z. (2023). Investment Value Analysis of BYD and Representative New Energy Markets. *Highlights in Business, Economics and Management*, 13, 275-284.
- Wen, X. (2023). Analysis of Business Strategies for the Development of Fortune 500 Enterprises:--A Case Study of BYD Auto Company. *Highlights in Business, Economics and Management*, 3, 276-281.
- Wen, X. (2023). Analysis of Business Strategies for the Development of Fortune 500 Enterprises:--A Case Study of BYD Auto Company. *Highlights in Business, Economics and Management*, 3, 276-281.
- World Economic Forum. (2022). *Electric vehicle sales leapt 55% in 2022 - here's where that growth was strongest*. Available at <https://www.weforum.org/agenda/2023/05/electric-vehicles-ev-sales-growth-2>

- Wang, X., Huang, L., Daim, T., Li, X., & Li, Z. (2021). Evaluation of China's new energy vehicle policy texts with quantitative and qualitative analysis. *Technology in Society*, 67, 101770.
- Xia, Z., Wu, D., & Zhang, L. (2022). Economic, functional, and social factors influencing electric vehicles' adoption: An empirical study based on the diffusion of innovation theory. *Sustainability*, 14(10), 6283.
- Yang, K. (2024). Forecasting EV Stock Trends Based on ARIMA Model Represented by Tesla and BYD. *Highlights in Business, Economics and Management*, 30, 135-141.
- Zahoor, A., Yu, Y., Zhang, H., Nihed, B., Afrane, S., Peng, S., ... & Mao, G. (2023). Can the new energy vehicles (NEVs) and power battery industry help China to meet the carbon neutrality goal before 2060?. *Journal of Environmental Management*, 336, 117663.
- Zheng, Z. (2024). Financial Analysis and Risk Study of Tesla Inc. *Highlights in Business, Economics and Management*, 24, 521-527.
- Zhu, L. (2023). Electric Vehicle Investment Analysis Based on Indicators: Evidence from NIO, BYD and, TSLA. *Highlights in Business, Economics and Management*, 7, 163-171.
- Zahoor, A., Yu, Y., Zhang, H., Nihed, B., Afrane, S., Peng, S., . . . Mao, G. (2023). Can the new energy vehicles (NEVs) and power battery industry help China to meet the carbon neutrality goal before 2060? *Journal of Environmental Management*, 336, 117663.
- Zeng, B., Li, H., Mao, C., & Wu, Y. (2023). Modeling, prediction and analysis of new energy vehicle sales in China using a variable-structure grey model. *Expert Systems with Applications*, 213, 118879.
- Zhu, L. (2023). Electric Vehicle Investment Analysis Based on Indicators: Evidence from NIO, BYD and, TSLA. *Highlights in Business, Economics and Management*, 7, 163-171.
- Zhang, P. (2024, January 10). *Automakers' Nev market share in China in 2023: BYD*

35%, *Tesla* 7.8%, *nio* 2.1%. CnEVPost.
<https://cnevpost.com/2024/01/10/automakers-nev-market-share-in-china-in-2023/>

Zhou, N., Wu, Q., & Hu, X. (2020). Research on the policy evolution of China's new energy vehicles industry. *Sustainability*, 12(9), 3629.