Proceedings of ICFTBA 2024 Workshop: Human Capital Management in a Post-Covid World: Emerging Trends and Workplace Strategies
DOI: 10.54254/2754-1169/113/2024.LD18563

Analysis of the Current Situation and Strategies of Traditional Vehicle Transition to New Energy Vehicles in China

Ruochen Liu[1,a,*]

[1]*Art and Science, The Ohio State University, Columbus, United State*
a. liu.9631@osu.edu
**corresponding author*

Abstract: The global climate issue has become one of the most significant problems for the. world, demanding an urgent transition to a new, sustainable energy paradigm. As one of the slightly larger automobile markets in the world, China has begun to address the underlying issue proactively by hastening the transformation from conventional fuel vehicles to new energy vehicles (NEVs). Consequently, to this end, the Chinese government has rolled out a set of policies that include provisions such as financial subsidies, tax incentive plans, as well as the development of the charging infrastructure, which has effectively stimulated the sales growth and industrial upgrading of new energy vehicles. This paper will provide a comprehensive analysis of the current status and impact of policy implementation, while also discussing the challenges of transitioning, such as technological limitations, market resistance, and international competition, and formulating specific strategies that target these issues. These studies seek to be real-data-based and explain how to approach sustainable development in the new energy vehicle industry of China.

Keywords: New Energy Vehicles, Transformation Strategy, Policy Support.

1. Introduction

With the global community emphasizing more on reducing carbon emissions, New Energy Vehicles (NEVs) are considered one of the significant future development trends in the automobile industry worldwide. In China, which is an extremely large market for automobile development, the NEV industry is not merely part of the national strategy but also one of the most important components related to the world's environmental protection. This paper will focus on the NEV sector in China, including its history, present issues, and prospects.

This paper will explore comprehensively four main domains: technological innovation, market adaptability, international cooperation, and policy readiness. These areas will be primarily oriented to the mutual relations of the global markets and the Chinese government's strategies on developing new energy vehicles. The sector of new energy vehicles in China has been advancing rapidly and stringently due to the impetus of technological innovations that encompass batteries, electric drive systems, wireless communication technologies, and other relevant aspects.

The analysis of market adaptation will encompass how China develops new energy vehicles to meet the needs of both domestic and international consumers, and how these demands are driving

DOI: 10.54254/2754-1169/113/2024.LD18563

changes in technological processes within the industry. Furthermore, the section on international collaborations will scrutinize the ways in which China is hastening technology transitions and market enlargement via partnerships with other nations.

Through investigating these essential domains, the article intends to provide a comprehensive view of new energy vehicle industry in China multifaceted environment, aspires to reveal the key drivers of its transformation, examines its position in the global new energy vehicle market, and anticipates future growth. Such a study not only lays the groundwork for understanding China's role in the expanded in new energy market around the world, but also significantly contributes to focusing on current automotive industry trends worldwide.

2. Technological Innovation and Market Adaptation

The development of new energy vehicle (NEV) industry in China is determined by both the transformation of the global automotive market and China's environmental policies. Innovations in core technologies such as battery technology, motor systems, and electronic control technology are the key to China's leading position in the global NEV competition. Advances in battery technology, notably that of higher energy density, lower cost, and better vehicle range, have not only improved the acceptance and status of the vehicles but also significantly contributed to consumers' cars' popularity.

New energy vehicle industry in China is now vastly evolving, and the technological advancement continues. Such governmental support, alongside foreign collaboration, has been a great advantage for this industry, and the fast-forwarding of the new energy vehicle market can be attributed to flourishing domestic and beyond borders' markets. The future of these technologies looks promising in terms of China's new energy vehicles. This also suggests the uncertainty and systematic risks associated with the electric automobile industry.

2.1. Competitive Environment Domestic and Overseas

With the current global expansion and development of the new energy vehicle sector becoming progressively more rapid, the international competitive position of China's new energy vehicle technology has become a key area of research. This section will explore how new energy vehicle technologies in China are aligned with international standards and their acceptance in the global market. The analysis will include how Chinese companies are responding to the competitive pressure from foreign brands through technological innovation, as well as the entry of foreign new energy vehicle brands into the Chinese market and their potential impact on the domestic market.

2.2. International Cooperation and Policy Opportunities

International cooperation and policy coordination play a crucial role in the development of the global new energy vehicle industry. This section will discuss China's role in international cooperation programs, including technology exchanges with other countries, joint R&D projects, and performance at international conferences and exhibitions. In addition, the analysis will cover how the Chinese government has used these international cooperation opportunities to optimize its domestic new energy vehicle policies and explore how these policy adjustments have enhanced the international competitiveness of China's new energy vehicle industry.

2.3. Summary

The article will summarize the major challenges and opportunities facing China's new energy vehicle industry and make predictions for future trends. Targeted strategic recommendations will be made to

DOI: 10.54254/2754-1169/113/2024.LD18563

help industry-related companies and policymakers better cope with possible future changes, such as fluctuations in market demand, changes in the international trade environment, and the challenges of rapid technology iteration. Through these in-depth analyses and recommendations, this paper hopes to provide references and insights for promoting the healthy and sustainable development of China's new energy vehicle industry.

Through comprehensive analysis and in-depth discussion, this paper aims to provide readers with a clear view of the whole picture of new energy vehicle industry in China, to better understand how this dynamically evolving sector is assuming an increasingly important role in the global automotive industry.

3. Analysis of Technological Innovation and Market Adaptability

In new energy vehicle industry in China, developing technological innovation and improving market adaptability are key factors driving the industry's growth. This paper focuses on China's progress in new energy vehicle technology, the impact of technology on market acceptance, and its competitiveness and potential in domestic and international markets.

3.1. Technological Innovations in New Energy Vehicle Industry in China

Technological innovations in battery technology, drive systems and smart network connectivity in new energy vehicle industry in China have significantly improved vehicle performance and reduced production costs [1]. Compared to its international peers, China's advances in increasing battery energy density and reducing costs have directly increased consumer acceptance of new energy vehicles and strengthened its competitiveness in the global market [2]. In addition, smart network connectivity technologies for China's new energy vehicles provide enhanced Telematics services that improve user experience and further drive market expansion. Looking ahead, continued technological innovation and international standard alignment are key for China to maintain its leading position in the industry.

3.2. Impact of Technology Development on Market Acceptance

The battery technology of new energy vehicles is the main influencing factor of its market acceptance. Advances in technology have a direct impact on consumer acceptance of new energy vehicles. For example, Wu et al. mentioned that with the improvement of charging infrastructure and the shortening of charging time, consumers' concerns about the daily usability of EVs gradually decreased [1]. In addition, Hu et al. showed that with the maturation of new energy vehicle technology and enhanced market education, consumers' trust in this emerging technology increased, which further contributed to the expansion of the market [2].

3.3. Competitiveness and Market Potential in Domestic and International Competitive Environments

In the domestic market, Chinese new energy vehicles have established a strong market position by localization advantages, such as government policy support and local mature supply chains [1, 2]. However, in the international market, Chinese brands still face challenges in terms of global visibility and technology recognition, as described in the study by Xue et al [3]. Nevertheless, with further technological development and deepening international cooperation, the international competitiveness of China's new energy vehicles is gradually increasing, and the market potential is huge [4].

DOI: 10.54254/2754-1169/113/2024.LD18563

In China, technological innovation in the market for new energy vehicles plays a pivotal role in reinforcing market acceptance and elevating domestic and international competitiveness. This paper reasonably projects that Chinese new energy vehicles will hold a larger share in the global market due to technological advancements and adaptive market strategic changes. Further technological advancements will be the leading factors in the evolution of its market segment.

4. International Cooperation and Policy Opportunities

In the new energy vehicle (NEV) market around the world, “Made in China” is becoming more and more prevalent and is receiving more and more attention from the international community. Through international cooperation, China can improve its technological level through international technology. This will not only improve the competitiveness of its own NEV technology, but also expand its influence in the global market.

4.1. China's Position in the International Market and the Role of International Cooperation

New energy vehicle industry in China has continuously improved its technology and market competitiveness through international cooperation. As pointed out in Tan et al.'s study, the Chinese government has not only successfully shaped and promoted China's international brand image in the field of new energy vehicles through policy docking and technology exchanges with other countries, but also significantly promoted the globalization process and common development of technologies in this field [5]. In addition, through participation in international automobile exhibitions and the Global New Energy Vehicle Forum, Chinese brands have been able to showcase their latest technologies, thus enhancing their competitiveness in the international market.

4.2. Docking and Synergy Between New Energy Vehicle Policies and International Policies in China

The synergy between new energy vehicle policies and international policies in China is of great significance in promoting the development of the global new energy vehicle industry. Feng's study argues that the Chinese government has been interfacing with international environmental protection standards and technical norms through international cooperation programs to ensure that China's policies are in line with the international development trend [6]. This international synergy of policies not only helps Chinese enterprises better adapt to the international market but also promotes the sharing and promotion of global environmental technologies.

4.3. Role and Opportunities of International Cooperation in Promoting The Development of China's New Energy Vehicle Industry

International cooperation provides many development opportunities for new energy vehicle industry in China. As described by Tan et al, by cooperating with leading international new energy technology companies, Chinese companies can obtain advanced technological knowledge and accelerate their R&D process [5]. In addition, international cooperation programs help Chinese new energy vehicle enterprises understand and enter new international markets and promote the healthy development of the global new energy vehicle industry through joint R&D and technology transfer [7,8].

5. Analysis of Automobile Sales

In this paper, this paper mainly choose Tesla and BYD cars to analyze. One of the main reasons is that these two cars are in very different situations in China. BYD, as a brand that has successfully transformed itself from a near-bankrupt fuel car to a new energy car, and has successfully transformed

DOI: 10.54254/2754-1169/113/2024.LD18563

itself to become a benchmark in this industry, has brought a lot of experience to other automobile brands. Tesla's relatively high pricing as a pure imported car has not only not led to low sales, but also to high sales. His promotional and pricing strategy should not be ignored.

Figure 1 categorizes the models of each car brand because it allows for a better breakdown of the sales volume of each type of car. It also gives a better picture of how the market caters to SUVs and sedans.

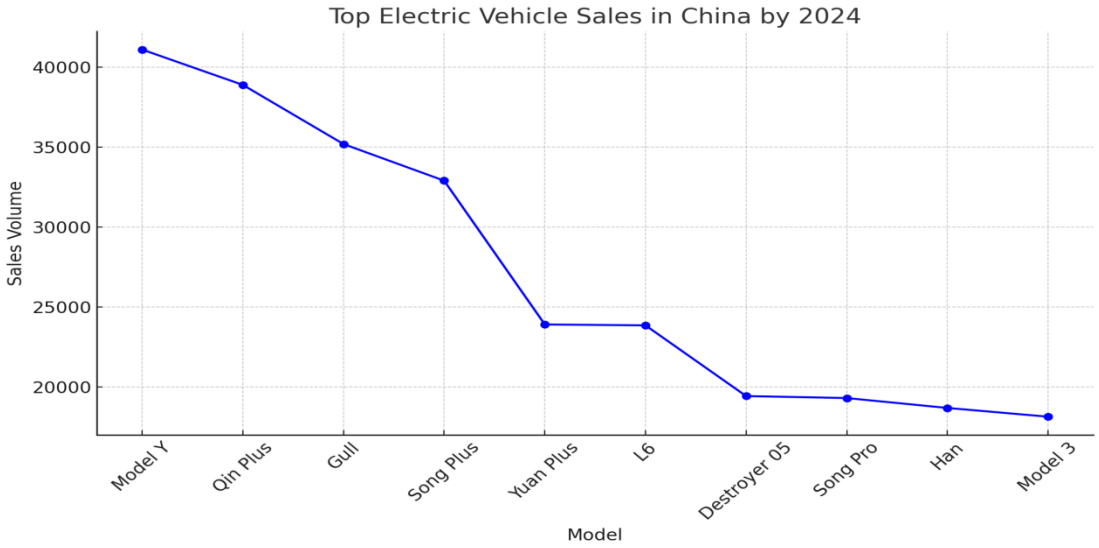

Figure 1: Top electric vehicle sales in China by 2024

Tesla and BYD's sales decisions are directly influenced by their strategies in China's new energy vehicle market. Tesla focuses on the impact of its global brand and the state-of-the-art technologies it has implemented in its electric cars. Additionally, the company has introduced a range of models that cater to different customers in terms of price and features. This will allow customers to enjoy more choices. It effectively publicizes the new Model Y as the most popular vehicle in its price category and the Model 3 as the second most popular vehicle in its class. The above shows that the strategy was successfully applied in Tesla's Chinese market, such as localization of the firm and marketing mix adjustment according to the culture and preferences of Chinese consumers. Conversely, BYD has a very wide lineup of models and strong presence in the hometown market, so it is included in the sales ranking. BYD's marketing approach leverages a variety of models—from high-end to economy vehicles—aiming to meet the demands of various consumers in society, thus allowing the company to penetrate more of the market and increase market share. Furthermore, with continuous innovation that consolidates and develops battery technology and complete EV solutions, BYD has played a significant role in its maintenance of the industry leadership in such a fiercely competitive market.

International cooperation, policy synchronization, and technological advancement have significantly aided the global growth of new energy vehicle sector in China. Through this process, not only will China be able to achieve rapid technological growth, but it will also enhance its global competitiveness in the international market. As the world demands more environmental protection and sustainable progress, international collaboration will still be the driving force behind new energy vehicle industry development in China.

DOI: 10.54254/2754-1169/113/2024.LD18563

6. Conclusion

This paper comprehensively analyzes the technological innovation, market adaptability, international cooperation, and policy opportunities of new energy vehicle (NEV) industry in China. The analysis shows that although China has made significant progress in NEV technology innovation and international market promotion, it still faces challenges such as insufficient technological maturity, international standard docking, and insufficient market competitiveness.

To meet these challenges and catch the opportunities, it is recommended that new energy vehicle industry in China should focus on the following strategies in its future development: first, the government should continue to adjust and improve its policies, especially in terms of financial subsidies and tax incentives, to support technology R&D and market expansion. Second, it should increase investment in market promotion to improve consumer awareness and acceptance of new energy vehicles, while strengthening docking and cooperation with the international market to enhance the international competitiveness of China's new energy vehicles. In addition, strengthen technological research and development, especially in key technologies such as battery technology and electric drive systems, to promote the overall improvement of the industry's technological level.

Finally, emphasizing the importance of sustainable development is key to ensuring that China's new energy vehicle industry maintains its leading position globally. Through technological innovation and development of the market, China's new energy vehicle industry is expected to achieve sustainable development globally and contribute to global environmental protection.

References

[1] *Wu, Z., Shao, Q., Su, Y., Zhang, D. (2021) A Socio-technical Transition Path for New Energy Vehicles in China: a Multi-level Perspective. Technological Forecasting and Social Change, 172, 121007.*

[2] *Hu, R., Cai, T., Xu, W. (2024) Exploring the Technology Changes of New Energy Vehicles in China: Evolution and Trends. Computers & Industrial Engineering, 191, 110178.*

[3] *Yan, X., Sun, S. (2021) Impact of Electric Vehicle Development on China's Energy Consumption and Greenhouse Gas Emissions. Clean Technologies and Environmental Policy, 23, 2909-2925.*

[4] *Zhang, X., Rao, R. Jian,X., Liang, Y. (2014) The Current Dilemma and Future Path of China's Electric Vehicles. Sustainability, 6(3), 1567-1593.*

[5] *Tan, R., Tang, D., Lin, B. (2018) Policy Impact of New Energy Vehicles Promotion on Air Quality in Chinese Cities. Energy Policy, 118, 33-40.*

[6] *Feng, J. (2023) Development and Impacts of the Incentive Policies for Electric Vehicles in China. In Annual Report on Actions to Address Climate Change (2019) Climate Risk Prevention,143-155.*

[7] *Qi C. (2024) Top Electric Vehicle Sales. Retrieved from https://xl.16888.com/ev.html*

[8] *Sou H. (2021) Tesla Brand Marketing Strategy, is This the Reason for Success in the. Chinese Market. Retrieved from https://www.sohu.com/a/480057078_121180205*