

The Drivers of Consumers' Intention to Purchase Electric Vehicles (Evs)

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Abstract

This paper comprehensively explores the pivotal role played by technical factors in shaping the landscape of the electric vehicle (EV) market. Through a detailed examination, it delves into how critical aspects such as driving range, charging convenience, vehicle performance, and overall quality directly influence consumers' purchasing decisions. With the rapid advancements in technology, we have witnessed remarkable enhancements in the driving range of EVs, coupled with significant improvements in charging infrastructure. Additionally, innovations in vehicle performance and quality have elevated the overall user experience, making EVs a more viable and attractive option for consumers. These advancements and improvements, collectively, have had a profound impact on the growth trajectory and sustainability of the EV market, paving the way for a brighter and greener future in transportation.

Keywords

Customer Intention; Electric Vehicle; Vehicle Performance.

1. Introduction

The electric vehicle (EV) market has undergone significant expansion in recent years, primarily fueled by technological breakthroughs and a growing public awareness of environmental issues. As sustainability and eco-consciousness increasingly become global priorities, consumers are shifting their preferences towards environmentally friendly transportation solutions, with EVs emerging as a front-runner. However, behind this growing popularity lies a complex set of considerations that consumers take into account before making a purchase. This paper seeks to delve deeper into these considerations by analyzing key technical factors such as driving range, charging convenience, vehicle performance, and overall vehicle quality. By understanding how these elements influence consumer choices, we aim to gain insights into the intricacies of the EV market's development and growth patterns. Through this exploration, the paper strives to provide a comprehensive understanding of the forces shaping the EV industry and its future trajectory (Chang et al., 2024).

2. Literature view

Economic Factors: Price and Subsidy Policies.

Price is one of the important factors consumers consider, and government subsidy policies have greatly promoted consumers' willingness to purchase. Despite the gradual withdrawal of subsidies for new energy vehicles in China, the market has maintained rapid growth, indicating

that other incentive measures such as tax incentives are also playing a role. In terms of usage costs, compared to traditional fuel vehicles, the low operating costs of electric vehicles have attracted a large number of consumers. Price is a key consideration for consumers when purchasing any product, especially for big-ticket items like electric vehicles. The initial purchase price of electric vehicles is usually higher than that of traditional fuel vehicles of the same class, which somewhat inhibits some consumers' willingness to purchase. However, government subsidy policies have largely alleviated this issue (Saraygord-Afshari et al., 2023). Government subsidies not only directly reduce the purchase price of electric vehicles but also send a clear signal: electric vehicles are the future development direction and worthy of consumers' investment and trust. In China, the government has implemented subsidy policies for new energy vehicles for many years, which has greatly stimulated consumers' willingness to purchase and driven the rapid development of the electric vehicle market. It's worth noting that although China's new energy vehicle subsidy policies are gradually being withdrawn, the electric vehicle market still maintains rapid growth. This indicates that besides government subsidies, other incentive measures are also playing a role (Carfora & Catellani, 2023). For example, policy measures such as tax incentives, preferential car loan rates, and free parking have all reduced consumers' car purchase and usage costs to varying degrees, further enhancing the market competitiveness of electric vehicles (Liu et al., 2022).

Besides the initial purchase price, usage cost is also a crucial factor for consumers when choosing transportation. Compared to traditional fuel vehicles, electric vehicles have significant advantages in usage costs. Firstly, the energy consumption cost of electric vehicles is much lower than that of fuel vehicles (Gómez-Rico et al., 2022). Because the price of electricity is usually lower than that of gasoline, the cost per kilometer of electric vehicles is significantly lower. This advantage will become more apparent in long-term use, saving consumers a lot of money. Secondly, the maintenance cost of electric vehicles is also relatively low. Due to their relatively simple structure and the absence of complex mechanical components like engines and transmissions, electric vehicles have lower maintenance requirements and costs. This further reduces consumers' usage costs and improves the economy of electric vehicles (Daragmeh et al., 2022).

In summary, economic factors such as price, subsidy policies, and usage costs are important factors that affect consumers' willingness to purchase electric vehicles. Government subsidies and other incentive measures have reduced the purchase and usage costs of electric vehicles, making them more competitive in the market. With continuous technological progress and cost reduction, it is expected that the usage costs of electric vehicles will further decrease in the future, attracting more consumers to choose this environmentally friendly and economical transportation.

Policy Factors.

Policy factors have played a crucial role in promoting the development of the electric vehicle market. The following is a detailed analysis of environmental policies, traffic restriction policies, as well as national and local incentive measures: Firstly, in terms of environmental and traffic restriction policies, many cities have implemented traffic restriction policies targeting fuel vehicles in response to environmental demands and traffic congestion issues. Due to the zero-emission characteristic of electric vehicles, they are usually not subject to these restriction policies. For example, in Xi'an, electric vehicles can travel all day without being affected by license plate restrictions, which has become an important factor attracting consumers to choose electric vehicles. Meanwhile, in order to address climate change and environmental pollution, governments around the world are actively introducing environmental policies to encourage the use of clean energy and low-carbon transportation. As a result, electric vehicles have received strong support from governments (Bian & Yan, 2022).

Secondly, regarding national and local incentive measures, in order to lower the threshold for purchasing electric vehicles, many countries and regions provide subsidies to consumers who purchase electric vehicles, directly reducing the purchase cost and increasing consumers' willingness to buy. In addition, the government has further reduced the purchase and usage costs of electric vehicles through tax incentives such as exempting purchase tax and reducing vehicle and vessel tax. These policies not only alleviate the economic burden on consumers but also demonstrate the government's clear support for the development of electric vehicles. Furthermore, some cities offer free or discounted parking policies for electric vehicles to encourage consumers to use them and reduce traffic congestion and air pollution in city centers (Augusto & Bolini, 2022).

In summary, by implementing environmental and traffic restriction policies, as well as providing national and local incentive measures such as purchase subsidies, tax benefits, and parking discounts, the government has successfully attracted more consumers to choose electric vehicles as an environmentally friendly and economical mode of transportation, thereby promoting the rapid development of the electric vehicle market (Yu & Jin, 2021).

Technical Factors.

Technical factors play a crucial role in the development of the electric vehicle market. Aspects such as driving range, charging convenience, vehicle performance, and quality directly impact consumers' purchasing decisions. With continuous technological advancements, the driving range of many electric vehicles has been significantly improved. For example, Tesla has reduced consumers' concerns about "range anxiety" through innovative battery technology and design. Simultaneously, the improvement of charging infrastructure globally, such as the notable progress made in China's charging facilities in 2024, has enhanced the convenience of using electric vehicles, further promoting market popularization and development. Additionally, vehicle performance and quality are key focuses for consumers. Technological breakthroughs made by brands like Tesla in driving performance, intelligence, and autonomous driving provide consumers with a brand-new driving experience, thereby driving the continuous growth of the electric vehicle market. In summary, by continuously improving technical factors, the electric vehicle industry will further meet consumer demands and achieve sustainable development (Ruhi et al., 2021).

In conclusion, the willingness of consumers to purchase EVs is a multifaceted decision influenced by various factors. Among these, technological performance, economic considerations, policy support, and environmental awareness stand out as the primary driving forces. With advancing technology and continued policy support, it is anticipated that EVs will become the preferred mode of transportation for a growing number of consumers in the future.

3. Conclusion

The comprehensive analysis conducted in this paper strongly emphasizes the profound importance of technical factors in shaping the growth and sustainability of the electric vehicle market. Significant innovations in battery technology, charging infrastructure, and vehicle performance have not only addressed but also surpassed consumers' expectations, effectively allaying concerns regarding range anxiety, enhancing charging convenience, and elevating the overall driving experience (Guo et al., 2021). Consequently, these remarkable advancements have cultivated a more conducive environment that encourages the widespread adoption of EVs. As we look to the future, the electric vehicle industry stands poised for even greater transformation. Continued technological progress in areas such as battery efficiency, charging speed, and vehicle performance is anticipated to further revolutionize the market, meeting and exceeding the evolving demands of consumers. This progression not only aligns with the global shift towards sustainable practices but also ensures that the electric vehicle industry remains

at the forefront of innovation, driving towards a cleaner, greener future for transportation (Barata & Coelho, 2021).

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