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A Study on the Product Demand of New Energy Vehicles Based on the Kano Model

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Abstract

With the continuous advancement of technology, the new energy vehicle (NEV) industry has become an important direction for the development of the global automotive industry. For China, it is not only one of the seven strategic emerging industries but also a key opportunity for the transformation and upgrading of the automotive industry. This study is based on the Kano model to systematically classify and prioritize the demand for new energy vehicle products, aiming to reveal the complex relationship between product characteristics and user satisfaction, and to provide strategic guidance for demand management and product development in the new energy vehicle industry. Through in-depth analysis, this paper identifies the essential attributes, performance attributes, excitement attributes, and indifferent attributes of new energy vehicle consumer demands, providing targeted product improvement and market strategy formulation for new energy vehicle companies. The research results show that battery life, safety, and after-sales service are essential attributes of new energy vehicles, while charging power, price, and brand recognition are performance attributes. Endurance, environmental performance, and other attributes are considered excitement attributes, which can significantly enhance consumer satisfaction and loyalty. In addition, factors such as price and the distribution of charging stations have a relatively small impact on consumer satisfaction and are classified as indifferent attributes. The study also found that with the development of the market, consumers' demand for emerging features such as intelligence and connectivity is growing, which puts forward new requirements for the direction of product development of companies. The study provides demand management and product development strategies for the new energy vehicle industry, helping companies to enhance user satisfaction and strengthen market competitiveness. It also provides a reference for the government to formulate relevant policies to promote the healthy development of the new energy vehicle industry.

Keywords

Kano Model, New Energy Vehicles, Styling, Product Demand, User Satisfaction

1. Introduction

Currently, a new round of technological revolution and industrial transformation is booming globally, with technologies related to automobiles, energy, transportation, and information communication accelerating integration. Electrification, connectivity, and intelligence have become the trends and directions for the development of the automotive industry. New energy vehicles integrate new energy, new materials, and transformative technologies such as the internet, big data, and artificial intelligence, promoting the transformation of automobiles from mere modes of transportation to mobile intelligent terminals, energy storage units, and digital spaces.

According to the research by Zhu Can and others, domestic and international scholars' research on the promotion and application of new energy vehicles mainly focuses on aspects such as technological development, system design and optimization, energy management, market promotion strategies, policy impact, environmental and economic assessments, charging infrastructure construction, and consumer behavior analysis, to promote the popularization and sustainable development of new energy vehicles (Zhu, Lin, & Xiang, 2020). According to the research by Wang and others, factors affecting the sales market of new energy vehicles in China include environmental concerns, energy efficiency, charging infrastructure, etc. The study provides a more objective consumer interest perspective by analyzing internet comment data (Wang et al., 2020). The research by Liu Yanan and others shows that safety, energy conservation and environmental protection, and high-quality after-sales service are essential attributes of new energy vehicles, while endurance and price are the expected attributes of consumers. The article also points out that the government's tax cuts and financial subsidies can effectively enhance consumers' willingness to purchase new energy vehicles (Liu et al., 2021). Xiong Yongqing and Xu Wen propose in their research that as the demonstration and promotion of new energy vehicles continue to deepen, "functional" policies show better stability and gradually increasing significance compared to "selective" policies, suggesting that policymakers should gradually shift from focusing on "selective" policies to "functional" policies (Xiong & Xu, 2021). Zhang Zhe in his thesis proposes that the application of artificial intelligence technology in intelligent connected new energy vehicles not only optimizes the intelligence level of the car but also significantly enhances driving safety and user experience (Zhang, 2024).

In summary, existing research has analyzed the development of the new energy vehicle market from multiple perspectives, but there is a general lack of research

on the key emerging field of intelligence. Intelligent technology not only represents innovation at the technical level but also has a profound impact on consumers' usage experience and purchase decisions. Given the digital environment in which Generation Z has grown up, their high acceptance and dependency on intelligent technology, existing research has not fully captured the specific needs and preferences of this group for intelligent functions of new energy vehicles. Therefore, this study will build on existing Kano model research, incorporating intelligence and other needs, to further explore how intelligent features can become a new driving force for the development of the new energy vehicle market, thereby enhancing consumer satisfaction and market competitiveness.

2. Kano Model and Theoretical Foundation

The Kano Model is a tool used to understand and categorize customer needs, proposed by Japanese scholar Noriaki Kano in 1984. By analyzing the relationship between product features and customer satisfaction, the model divides requirements into five categories: Must-be Quality, One-dimensional Quality, Attractive Quality, Indifferent Quality, and Reverse Quality. When applying the Kano Model, it can reveal the complex perception of customers towards products or services and guide companies on how to more effectively meet these needs (Tang & Long, 2012). The specific Kano Model is shown in **Figure 1**.

Must-be Quality (M): These are the basic functions that consumers consider should be inherent in a product or service. They are the needs that meet the most basic expectations of users. If these needs are met, user satisfaction will not significantly increase; however, if they are not met, user dissatisfaction will significantly increase.

One-dimensional Quality (O): These needs are the standards that users hope the product or service can achieve. User satisfaction is directly proportional to the degree of satisfaction of these needs. If the expected needs are met, user satisfaction will correspondingly increase; on the contrary, if they are not met, user satisfaction will decrease.

Attractive Quality (A): These features exceed user expectations and can bring surprises to users. When a product or service includes these characteristics, it can greatly enhance user satisfaction and pleasure, even if users did not explicitly expect them. However, if these features are lacking, users generally will not feel dissatisfied.

Indifferent Quality (I): Whether these needs are met or not, they have no significant impact on user satisfaction. Users usually do not notice the presence or absence of these characteristics.

Reverse Quality (R): These are the characteristics that users do not want in a product or service. If these characteristics exist, they will reduce user satisfaction. User satisfaction is inversely proportional to the provision of these characteristics because not all users have the same needs or preferences.

In this study, by calculating the Better-Worse coefficient, the specific impact of different needs on user satisfaction is further analyzed.

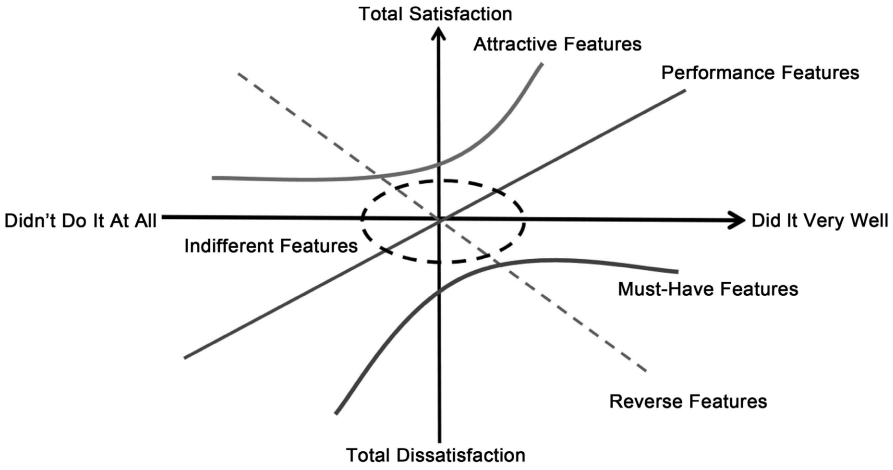

Figure 1. Kano model diagram.

3. Research Design

3.1. Gathering Consumer Demands for Purchasing New Energy Vehicles

This study employs the methodological function of CiteSpace knowledge mapping, as proposed by Chen Yue and others in their research, which is based on co-citation analysis theory and social network analysis, capable of revealing the key paths and knowledge inflection points in the evolution of academic fields (Chen et al., 2015). This study will draw on its theoretical foundation and use the CiteSpace tool to identify research frontiers and consumer demands in the field of new energy vehicles.

On China National Knowledge Infrastructure (CNKI), a comprehensive quantitative study analysis was conducted on publications from 2010 to 2024 with the keyword "new energy vehicles". After conducting a thorough search for core journals, CSSCI, and CSCD-included journals, a total of 1206 related documents were collected. After a meticulous screening process that excluded non-academic documents such as conference abstracts and calls for papers, 1000 high-quality literature samples were finally selected for creating a keyword co-occurrence knowledge map to reveal the research focus and themes in the field of new energy vehicles (Figure 2).

By analyzing the timeline map, this study tracked the trend of keywords, identified research dynamics, and potential new research directions, while the burst term analysis revealed phenomena of significant increases in the number of documents within specific periods, which may indicate new research issues or trends. The results show that China's research in the field of new energy vehicles mainly focuses on industrial policies, power battery technology, government subsidy policies, technological innovation, and charging facility construction. However, there is a lack of research on market demands from a consumer psychology perspective in existing literature.

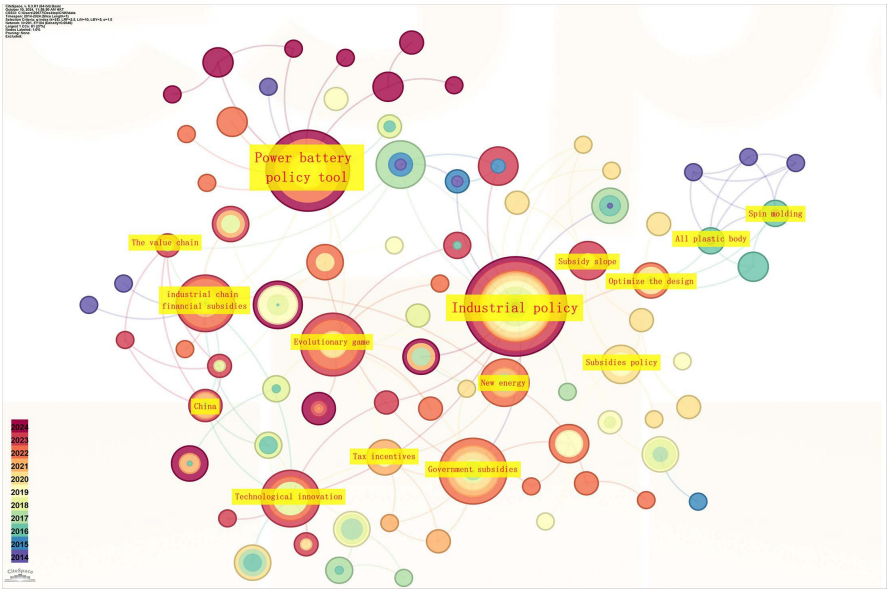

Figure 2. The keyword cooccurrence knowledge map.

Therefore, based on the CiteSpace analysis, this study adopted non-directed interviews to collect car purchase demands from 30 target users and potential users of new energy vehicles, with interviewees aged between 15 and 30 who have a certain understanding of new energy vehicles and their related policies and infrastructure. Combined with the 17 demand attributes proposed by Liu Yanan and others, and in response to the development of new technologies and policies, this study updated and expanded the demand attributes.

The newly added demand attributes include new energy indicators, intelligent assisted driving, driving experience, exterior design, personalized options, vehicle body materials, charging station layout and convenience, old car replacement, and intelligent interconnection, while removing attributes that no longer meet the current market demand, such as priority for license plates, technology, infrastructure, and government promotion.

3.2. Questionnaire Design and Data Collection

The survey questionnaire consists of two main parts:

The first part aims to collect basic information about the participants, including age, education level, whether they currently own a new energy vehicle, and their purchase intentions.

Table 1. Example of positive and negative questions in the kano questionnaire.

Question	Very Unimportant	Unimportant	Neutral	Important	Very Important
New energy electric vehicles have excellent after-sales service					
New energy electric vehicles do not have excellent after-sales service					

Table 2. Kano evaluation result analysis comparison table.

Service Demand		Negative Question (Without XXX)				
		Very Important	Important	Neutral	Unimportant	Very Unimportant
Positive Question (With XXX)	Very Important	Q	A	A	A	O
	Important	R	I	I	I	M
	Neutral	R	I	I	I	M
	Unimportant	R	I	I	I	M
	Very Unimportant	R	R	R	R	Q

a. M—Must-be Quality; O—One-dimensional Quality; A—Attractive Quality; I—Indifferent Quality; R—Reverse Quality; Q—Questionable Answer.

The second part is the core section, involving the Kano model questionnaire, which requires participants to make positive and negative evaluations of 17 demand characteristics of new energy vehicles. The evaluation uses a five-point Likert scale, ranging from "completely unimportant" to "extremely important" (for a specific example, see Table 1). Based on the feedback from the Kano questionnaire, referring to the Kano evaluation result analysis comparison table (see Table 2), the Kano category of new energy vehicle demand characteristics is determined. To ensure the reliability of the questionnaire results, this study will exclude the data of participants who have reverse characteristics or problems in their answers.

Introduction to the Principles of Questionnaire Design:

The design of the questionnaire is based on the principles of clarity, relevance, neutrality, and conciseness. Clarity ensures that the questions are easily understood by respondents. Relevance ensures that the questions are related to the research objectives. Neutrality ensures that the questions do not lead or bias the respondents. Conciseness ensures that the questions are brief and to the point.

4. Data Analysis

4.1. Basic Situation

In this survey, a total of 185 questionnaires were collected. After screening, 9 questionnaires that did not meet the requirements were excluded, and 176 valid questionnaires were confirmed, with an effective recovery rate of 95.1%. The descriptive statistical analysis results of the survey samples are shown in Table 3: In terms of age distribution, respondents aged 15 to 30 accounted for as high as 82.9%. In terms of educational background, respondents with a university degree or higher accounted for 68.9%. Among all samples, 72.7% of respondents expressed their intention to purchase new energy vehicles. Overall, both the number of questionnaires returned and the data quality met the expected goals of the study.

4.2. Analysis of Consumer Satisfaction of New Energy Vehicles Based on Kano Model

According to the Kano evaluation result analysis comparison table, the Kano

Table 3. Statistical analysis of survey samples.

Characteristic Variable	Option	Frequency	Percentage (%)
Gender	Male	96	54.55
	Female	80	45.45
Age	Under 15	0	0
	15 to 30	146	82.95
	Over 31	30	17.05
Education Level	High School or below	22	12.5
	Associate Degree	31	17.61
	Bachelor's Degree	90	51.14
	Postgraduate or above	33	18.75
Intention to Purchase New Energy Vehicles	Yes	128	72.73
	No	48	27.27
Ownership of New Energy Vehicles at Home	Yes	93	52.84
	No	83	47.16

attribute values for the 17 demand indicators of new energy electric vehicles were obtained. The indicator with the maximum attribute value was selected as the final Kano attribute classification for that demand indicator. The summary results of the Kano attribute classification for the demand indicators of new energy vehicles are shown in **Table 4** (Li, 2009).

Table 4. Statistical table of kano attribute classification of new energy vehicle demand indicators.

Serial Number	Indicator	M	O	A	I	Kano Attribute
1	Battery Life	7.39%	10.23%	31.82%	36.36%	I
2	Safety	2.84%	2.27%	27.27%	39.2%	I
3	Endurance	4.55%	4.55%	47.73%	24.43%	A
4	Environmental Protection	7.96%	7.96%	35.23%	30.11%	A
5	Charging Power	23.86%	26.7%	11.93%	13.07%	O
6	Price	8.52%	1.14%	8.52%	63.07%	I
7	Brand Recognition	0.57%	5.11%	39.77%	25%	A
8	Corporate Promotion	32.39%	5.11%	6.82%	34.66%	I
9	After-Sales Service	41.48%	5.68%	2.48%	22.73%	M
10	Smart Connectivity	23.3%	36.93%	17.61%	8.52%	O
11	Government Subsidies	36.93%	6.25%	2.27%	30.68%	M
12	Old Car Replacement	34.09%	2.27%	3.98%	32.39%	M
13	New Energy Indicator	38.64%	2.27%	8.82%	37.5%	M

Continued

14	Intelligent Assisted Driving	13.64%	45.45%	12.5%	6.25%	O
15	Charging Station Distribution	9.09%	1.14%	14.775	57.39%	I
16	Vehicle Body Material	17.05%	27.27%	21.59%	17.61%	O
17	Driving Experience	44.89%	7.39%	4.55%	28.98%	M
18	Aesthetic Design	46.02%	7.39%	3.98%	22.16%	M
19	Personalized Customization	49.43%	6.82%	2.27%	21.59%	M

Indifferent Quality (I):

Battery Life, Safety, Price, Corporate Promotion, Charging Station Distribution. These attributes are not significantly noticed by customers and do not largely impact their satisfaction. They are considered baseline expectations or not critical to the customer experience.

Attractive Quality (A):

Endurance, Environmental Protection, Brand Recognition. These are the exciting features that can significantly enhance customer satisfaction if excelled in. They are not typically expected but can differentiate the product in the market.

One-dimensional Quality (O):

Charging Power, Smart Connectivity, Intelligent Assisted Driving, Vehicle Body Material. These attributes have a direct impact on customer satisfaction. Improvements in these areas will be directly rewarded with increased satisfaction, while neglect may lead to dissatisfaction.

Must-be Quality (M):

After-Sales Service, Government Subsidies, Old Car Replacement, New Energy Indicator, Driving Experience, Aesthetic Design, Personalized Customization. These are the fundamental requirements that customers expect to be present. They are critical to customer satisfaction, and their absence can lead to significant dissatisfaction.

Table 4 categorizes the demand attributes of new energy vehicles and analyzes them based on the principles of the Kano model. The Kano model analysis calculates the satisfaction influence (SI) and dissatisfaction influence (DSI) for each demand attribute to determine how sensitive consumers are to changes in these attribute levels, with the aim of identifying which demand attributes are more likely to enhance consumer satisfaction when improved. Although the Kano questionnaire can classify the demand attributes of new energy vehicles and determine their categories within the Kano model, it cannot directly judge the sensitivity of consumer satisfaction to these attributes. Therefore, it is necessary to further analyze the satisfaction sensitivity of consumers to the various demand attributes of new energy vehicles, and to determine which demand attributes have higher satisfaction sensitivity by calculating the SI and DSI, thereby more effectively improving consumer satisfaction.

Better refers to the satisfaction coefficient after addition, with results ranging

from 0 to 1, indicating that providing a certain attribute will increase consumer satisfaction, and the closer the value is to 1, the greater the impact on consumer satisfaction; Worse refers to the dissatisfaction coefficient after elimination, with results ranging from −1 to 0, indicating that not providing a certain attribute will decrease consumer satisfaction, and the closer the value is to −1, the greater the impact on consumer dissatisfaction (Han, 2019). The calculation formula is shown as follows, and the calculation results are shown in Table 5.

$$\text{Better/SI} = (A + O)/(A + O + M + I) \quad (1)$$

$$\text{Worse/DSI} = -1 \times (O + M)/(A + O + M + I) \quad (2)$$

Table 5. Calculation results of better-worse coefficients for new energy vehicle demand attributes.

Serial Number	Indicator	Better/SI	Worse/DSI
1	Battery Life	49.01%	−20.53%
2	Safety	41.27%	−7.14%
3	Endurance	64.34%	−11.19%
4	Environmental Protection	53.15%	−19.58%
5	Charging Power	51.13%	−66.92%
6	Price	11.89%	−11.89%
7	Brand Recognition	63.71%	−8.06%
8	Corporate Promotion	15.11%	−47.48%
9	After-Sales Service	11.72%	−64.84%
10	Smart Connectivity	63.16%	−69.74%
11	Government Subsidies	11.19%	−56.72%
12	Old Car Replacement	8.59%	−50%
13	New Energy Indicator	12.42%	−47.06%
14	Intelligent Assisted Driving	74.45%	−75.91%
15	Charging Station Distribution	19.31%	−12.41%
16	Vehicle Body Material	58.5%	−53.06%
17	Driving Experience	13.91%	−60.93%
18	Aesthetic Design	14.29%	−67.14%
19	Personalized Customization	11.35%	−70.21%

Using the Better/SI value as the vertical coordinate and the absolute value of Worse/DSI as the horizontal coordinate, with the average value of SI at 34.13% and the average value of DSI at −43.2%, the demand attribute quadrant map was plotted using SPSS, as shown in Figure 3.

The Better-Worse matrix analysis results indicate that the Must-be attributes include personalized customization, after-sales service, driving experience, and aesthetic design, etc. (see Figure 3). These attributes are the basic attributes that

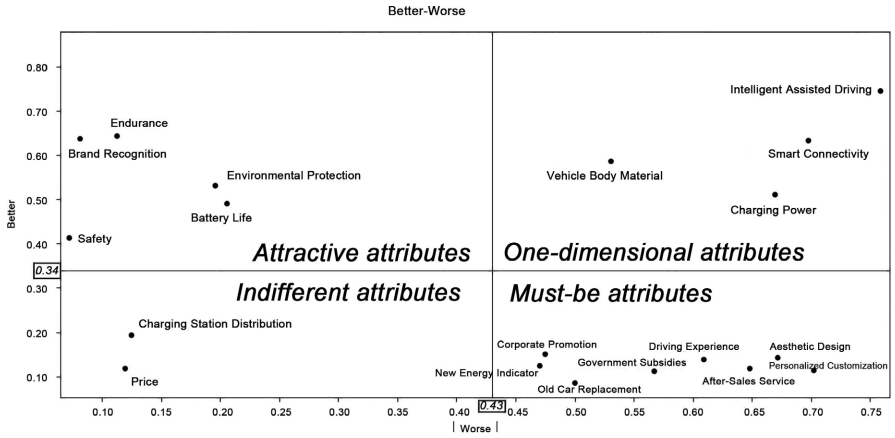

Figure 3. Better-Worse coefficient map.

new energy vehicles must have, and without them, consumer satisfaction will significantly decrease. Consumer attention to new energy vehicles is mainly reflected in the degree of realization of personalized customization, the timeliness of after-sales service, the comfort of driving experience, and the attractiveness of aesthetic design. The premise of developing intelligent and connected technologies is to ensure the safety performance and overall quality of the products, so that consumers can have a higher level of trust in new energy vehicles, thereby promoting the widespread application and healthy development of intelligent and connected technologies in the industry.

The One-dimensional attributes include vehicle body material, charging power, smart connectivity, and intelligent assisted driving. These attributes reflect the competitive strength of new energy vehicles, and improvements in expected attributes will increase consumer satisfaction. When new energy vehicles have more durable vehicle body materials, more efficient charging power, richer smart connectivity functions, and more advanced intelligent assisted driving technology, consumers will favor new energy vehicles more.

The Attractive attributes include safety, brand recognition, endurance, environmental protection, and battery life. Attractive attributes are the most concerned parts for consumers and are also the attributes that can most enhance consumer loyalty and satisfaction. The results show that safety is one of the important factors consumers consider when choosing new energy vehicles, and well-known brands can often provide more reliable product quality and service security, thereby increasing consumer trust. Consumers tend to choose models with strong endurance, and strengthening the above aspects can greatly enhance consumers' willingness to purchase new energy vehicles.

The Indifferent attributes include price and charging station distribution. This indicates that the provision or lack of these attributes will not significantly affect consumer satisfaction. Starting from the user's perspective, this article believes that as time goes on, the focus of consumer attention to new energy vehicles may change, making attributes that were originally not valued become important.

Therefore, governments and enterprises should pay close attention to market dynamics to ensure that promotional strategies keep pace with consumer needs, and promote the popularization of new energy vehicles by optimizing communication messages.

5. Results Analysis and Strategies

5.1. Strategic Countermeasures for New Energy Vehicle Enterprises

Strengthen the Development of Intelligent and Connected Technologies: In the era of digital transformation, the development of intelligent and connected technologies for new energy vehicles has become a key force in promoting industry progress. As pointed out in the research by Hao Hao and others, with the continuous advancement of artificial intelligence technology and the wave of mobile internet, the popularization of intelligent connected systems for new energy vehicles has integrated aspects such as smart roads, communication networks, and cloud technology, thereby developing a series of vehicle functions that meet actual consumer needs (Hao, Cai, & Tao, 2022). This indicates that enterprises should prioritize the development of intelligent and connected technologies. Develop advanced intelligent driver assistance systems, infotainment systems, and functions that enable remote vehicle control and optimized traffic flow through connected vehicle technology. Technological innovation in intelligent and connected technologies can not only enhance product competitiveness but also provide consumers with a safer, more convenient, and personalized driving experience.

Provide High-Quality After-Sales Service: In the new energy vehicle market, the quality of after-sales service directly affects consumer satisfaction and loyalty. As emphasized in the research by Wang Jia and others, with the increase in the number of new energy vehicles, after-sales service issues have become increasingly prominent, and enterprises must improve the quality and efficiency of after-sales service (Wang & Fang, 2019). To enhance consumer satisfaction and establish long-term customer relationships, new energy vehicle enterprises should take the following measures: Enterprises should build a comprehensive after-sales service network to ensure the timeliness and accessibility of services. This includes setting up service centers in major cities and sales areas, as well as providing mobile service vehicles to cover a wider area. Establish a rapid response customer service system so that consumers can get timely support and solutions when they encounter problems during use. Companies can use modern technological means such as mobile applications to provide vehicle usage guidance, fault self-diagnosis, online appointment maintenance, and other services, thereby enhancing the user experience.

Strengthen Brand Building: Brand is an important asset of an enterprise, and for new energy vehicle enterprises, strengthening brand building is key to winning the market. Companies should shape a unique brand image through precise market positioning and communicate brand value through various channels. Use

digital marketing, social media, and offline activities to establish effective communication and interaction with consumers, enhancing brand awareness and reputation. At the same time, companies should also focus on the quality of products and services to ensure that every consumer contact strengthens the positive perception of the brand. Through continuous brand building, new energy vehicle enterprises can stand out in the competitive market and win consumer trust and loyalty.

5.2. Government Policy Support Suggestions

Increase the Number of New Energy Vehicle License Plates in Restricted Cities: To further promote the popularization and application of new energy vehicles, the government can consider increasing the number of license plate quotas for new energy vehicles in restricted cities. This measure can not only alleviate the environmental pressure brought by traditional fuel vehicles but also promote the development of the new energy vehicle industry. For example, in the 2024 quota for small passenger cars in Beijing, the quota for new energy vehicles was increased to 80,000, while the quota for ordinary vehicles was reduced to 20,000. This policy adjustment helps to guide consumers to purchase new energy vehicles and also injects new vitality into the new energy vehicle market.

Increase the Pilot Work of Intelligent and Connected Technologies: To promote the development and application of intelligent connected vehicle technology, the role of the government is crucial. Zuo Zhiqiang and others proposed a review of the optimization and control of mixed traffic systems based on vehicle-road-cloud integration, emphasizing the importance of intelligent roadside infrastructure, the improvement of vehicle terminal equipment rates, and the construction of city-level service management platforms (Zuo, Liu, & Wang, 2023). These measures can promote the innovation of intelligent connected vehicle technology. Consider increasing investment and support for pilot projects of intelligent connected vehicles, by establishing intelligent roadside infrastructure, improving the equipment rate of vehicle terminals, and establishing city-level service management platforms to promote the development of intelligent connected vehicle technology. These pilot projects are important steps in exploring various application scenarios of intelligent connected vehicles and lay the foundation for the large-scale promotion of future technologies. Through these pilot projects, different intelligent connected vehicle technologies can be tested and evaluated for performance in actual traffic environments, providing valuable data and experience for policymakers to develop more effective policies and measures.

Strengthen Market and Public Opinion Regulation: The government should strengthen the supervision of the new energy vehicle market, especially against malicious attacks and the spread of false information about new energy vehicles. By establishing a cross-departmental information sharing mechanism, regularly summarizing fire and major accident information, and accelerating the establishment of a vehicle accident reporting system, those who conceal accident

information or do not cooperate with the investigation can be suspended or canceled the subsidy qualification of the models involved according to the severity of the situation. The government can work more closely with the media to guide public opinion to correctly understand the problems in the development of the new energy vehicle industry and enhance consumer confidence in new energy vehicles. Through these measures, malicious attacks on new energy vehicles can be cut off at the source, ensuring the healthy development of the industry.

6. Conclusion

This study uses the Kano model to meticulously classify and analyze the product demands of new energy vehicles, aiming to reveal the relationship between consumer demands and product characteristics, thereby providing strategic guidance for demand management and product development in the new energy vehicle industry. The results of the study reveal the diversity and complexity of consumer demands for new energy vehicles and clarify the extent to which different demand attributes affect user satisfaction.

Through the application of the Kano model, this study classifies the demand attributes of new energy vehicles into Must-be, One-dimensional, Attractive, and Indifferent attributes. Must-be attributes such as battery life, safety, and after-sales service are the basic conditions that consumers believe products must meet, and the satisfaction of these attributes is a prerequisite for companies to gain market access. One-dimensional attributes such as charging power, price, and brand recognition are positively correlated with consumer satisfaction, and improvements in these attributes by companies can significantly enhance consumer satisfaction. Attractive attributes such as endurance and environmental performance exceed consumer expectations and can greatly enhance consumer satisfaction and loyalty. Indifferent attributes such as price and the distribution of charging stations have a relatively small impact on consumer satisfaction, and companies may not receive corresponding market returns on these attributes.

The study also found that with the continuous development of the new energy vehicle market, consumer demand for emerging features such as intelligence and connectivity is growing. This indicates that companies should pay more attention to the application of these emerging technologies in product development to meet consumers' pursuit of high-tech and intelligent products. Future research can further explore the impact of emerging features such as intelligence and connectivity of new energy vehicles on consumer demands, and how to better meet consumer demands through technological innovation and market strategies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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