

New ECO-Business Model for New Energy Vehicles in China and Its Impact on Brand Competitiveness

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Abstract

This study investigates the intricate relationship between the ecological business model for new energy vehicles (NEVs) in China and its impact on brand competitiveness. Anchored in the value ecosystem theory, the research unravels the components, mechanisms, and dimensions shaping the NEV sector's competitive landscape. Through a comprehensive exploration guided by research questions, the study constructs a structural model detailing the interactions between China's NEV eco-business model and brand competitiveness. Empirical analysis reveals the significance of competitive advantage derived from the NEV eco-business model and its positive impact on brand competitiveness. Furthermore, the study elucidates the mechanisms through which customer perceived value and ecosystem expansion influence brand competitiveness within the NEV market. By offering actionable insights for industry practitioners, policymakers, and scholars, this research contributes to a nuanced understanding of the NEV ecosystem and its implications for brand competitiveness in China's automotive sector.

Keywords: New ECO-Business Model, Energy Vehicles, Brand Competitiveness

Introduction

Achieving sustainable development that takes into account both human needs and environmental constraints has emerged as a critical issue in light of the world's expanding economy. Climatic anomalies, land droughts, global warming, and sea-level rise are caused by the greenhouse effect, which was proven in the 2009 United Nations Climate Conference by studies. In terms of human well-being and societal progress, these environmental shifts are quite worrying. Consequently, nations around the globe now view combating global warming as an urgent matter of national importance. Nearly two hundred nations that are members of the United Nations pledged to completely reduce their carbon dioxide emissions in December 2018 when they joined the Paris Agreement. With the goal of reaching carbon emissions peak by 2030 and increasing the proportion of non-fossil energy to primary energy

consumption of around 20%, China—the world’s leading carbon emitter—announced an ambitious energy conservation and emission reduction strategy in 2015.

This environmental problem is exacerbated by the transportation industry, which is the second-biggest producer of carbon dioxide (CO₂), behind the electricity sector. China had the world's largest vehicle fleet by the end of 2023, with 336 million vehicles. Although more people owning cars is good for the economy and makes life easier for locals, the increased carbon emissions from these automobiles cause serious pollution. Germany, the UK, and France are among the wealthy nations that have set 2030 as the target year for a fuel car ban in an effort to curb this.

The Chinese government has responded by speeding up the growth of the NEV sector. The NEV sector in China has had tremendous growth, surpassing all other countries in terms of production and sales, and has been identified as a strategic developing industry since the 12th Five-Year Plan. China accounted for more than half of the world's NEV market by the end of 2023, with 20.41 million owners. In order to maintain growth without heavily depending on government subsidies, new business models are required when development moves from being driven by policies to the market.

There are a number of reasons why it is critical to investigate new business models. First, compared to conventional gas-powered vehicles, NEVs are still too expensive to be competitive due to their raw materials and technology being so young. Consequently, businesses should focus less on pricing and more on building brand recognition and quality to increase brand competitiveness. Second, new business models that account for technology developments like cloud computing, 5G, and mobile Internet are required as the industrial sector enters the era of the cloud economy.

Examining how eco-business strategies affect the competitiveness of NEV brands in China is the main objective of this study. The ability to establish sustainable profitability and leverage brand premiums is made possible by brand competitiveness, which is why it is crucial. As NEV firms navigate the market-oriented world, it is vital to understand how eco-business models can boost brand competitiveness.

The study's ability to make a contribution to both academic research and industry practice is what makes it significant. By bringing value ecosystem theory to bear on the investigation of NEV business models, it presents a novel theoretical contribution to the academic community. For NEV businesses, this means having a blueprint for how to improve their brand's competitiveness, meet customer needs, and expand sustainably. Policymakers, business executives, and academics with an interest in sustainable development, the restructuring of the automobile sector, and the incorporation of cutting-edge technology into company models may find this research very useful.

This study aims to answer important questions about the complex link between the ecological business model of NEVs in China and the effect on brand competitiveness that this model has. We are guided in our investigation by the following research questions:

RQ1: Components of China's NEV Eco-Business Model

The first research question seeks to unravel the components of China's new energy vehicle eco-business model through the lens of the value ecosystem theory. This involves a comprehensive exploration of the interconnected elements shaping the value creation and exchange within the NEV sector, elucidating how various stakeholders contribute to and benefit from the ecosystem.

RQ2: Structural Model of Interaction and Measurement

Building upon the theoretical foundation of the value ecosystem, the second research question aims to construct a structural model detailing the interactions between China's NEV eco-business model and brand competitiveness. Additionally, the question addresses the methodological challenge of effectively evaluating and measuring these interactions. This involves developing a robust framework to assess the qualitative and quantitative dimensions of the identified components, ensuring a comprehensive understanding of their impact on brand competitiveness.

RQ3: Significance of Competitive Advantage

The third research question delves into the significance of the competitive advantage derived from the new energy vehicle eco-business model on brand competitiveness. Through empirical analysis, this research aims to determine the extent to which a competitive edge in eco-business practices translates into enhanced brand competitiveness within the Chinese NEV market.

RQ4: Mechanisms of Customer Perceived Value and Ecosystem Expansion

The final research question investigates the intricate mechanisms through which customer perceived value and value ecosystem expansion influence brand competitiveness within the context of new energy vehicle eco-business models. This involves an exploration of consumer perceptions, preferences, and the broader impact of ecosystem expansion on brand positioning and recognition.

By systematically addressing these research questions, this doctoral thesis aims to contribute a nuanced understanding of the ecological business model for new energy vehicles in China, unraveling its implications for brand competitiveness. Through theoretical exploration and empirical analysis, the research endeavors to provide actionable insights for industry practitioners, policymakers, and scholars invested in the sustainable development of the automotive sector. The research endeavors to address key inquiries central to the intricate relationship between an ecological business model for new energy vehicles (NEVs) in China and its consequential impact on brand competitiveness. The following research questions guide the investigation:

Objectives

Specific research objectives include

RO1. Explain that the competitive advantage of the ecological business model of new energy vehicles is a multidimensional concept, including value proposition advantage, value creation advantage, value acquisition advantage and value maintenance advantage.

RO2. Argue that the competitive advantage of the ecological business model of new energy vehicles and its four constituent dimensions have a significant positive impact on brand competitiveness.

RO3. Finds that customer-perceived value plays a mediating effect between the competitive advantages of the ecological business model of new energy vehicles and brand competitiveness.

RO4. It is proved that the expansion of the value ecosystem does not have a moderating effect between the competitive advantage of the ecological business model of new energy vehicles and brand competitiveness.

RO5. According to the characteristics of the new energy vehicle eco-business model, a four-dimensional structural model of the competitive advantage of the new energy vehicle eco-business model under the value ecosystem is attempted to be constructed, which can be used to enrich the theoretical content of the new energy vehicle eco-business model.

RO6. Based on the theoretical perspective of value ecosystem, establish the relationship between the impact of new energy vehicle eco-business model on brand competitiveness, and expand the research boundary of new energy vehicle business model and brand competitiveness.

RO7. Explore the mechanism of new energy vehicle eco-business model on brand competitiveness, and do a modeling study on the joint effect between multiple variables.

Method

The study firstly conducts a literature review and overview of domestic and international related studies on the theories and variables of value ecology theory, value ecosystem expansion, customer perceived value, new energy automobile business model, brand competitiveness, etc.; secondly, through theoretical analysis, it establishes a theoretical model of the mechanism of the role of new energy automobile eco-business model based on value ecosystem on brand competitiveness that is suitable for cloud economy, and then conducts a theoretical analysis of the impact of new energy automobile ecological business model on brand competitiveness in China. automobile eco-business model on brand competitiveness is theoretically analyzed, research hypotheses and sub-hypotheses are put forward, and on this basis, interview questionnaires are designed, followed by testing and correcting the measurement scales through pre-survey and exploratory factor analysis and validation factor analysis to form a formal questionnaire, and the questionnaire data are analyzed by statistical data again. After that, this paper will study the impact of new energy vehicle eco-business model on brand competitiveness based on the results of statistical analysis of the questionnaire data, and research and analyze the role of new energy vehicle eco-business model on brand competitiveness, the mediating role of the customer's perceived value, and the moderating role of the expansion of the value ecosystem. Finally, this paper will summarize the main research conclusions of this paper by combining the research results of the aforementioned theoretical and empirical analyses, and based on the research conclusions of this paper, it will put forward the corresponding managerial revelations and suggestions, further pointing out the direction of future in-depth research needed in this field.

Based on the rooting theory, a four-dimensional model of competitive advantage of new energy vehicle eco-business model is initially constructed and saturation test is carried out. According to the research and analysis of Zagan theory, the competitive advantage of new energy vehicle eco-business model under the value ecosystem consists of four dimensions: value proposition advantage, value creation advantage, value acquisition advantage, and value maintenance advantage, and thus a model of the structure of the competitive advantage of new energy vehicle eco-business model has been constructed. The dimensions and indicators summarized by the rooting theory will be used as a guide, and the statistical analysis method, combined with exploratory factor analysis and validation factor analysis, will be used to develop a measurement scale for the competitive advantages of the new energy vehicle eco-business model, and quantitatively examine the structural model of the competitive advantages of the new energy vehicle eco-business model through a large-sample questionnaire survey, in order to test the reasonableness and stability of the dimensions and to provide a basis for the follow-up of the competitive advantages of the new energy vehicle eco-business model and the development of the new eco-business model. It also provides theoretical basis and data support for the subsequent research on the

relationship between the competitive advantage of eco-business model of new energy automobile and the brand competitiveness of enterprises.

Findings

The study delves into the intricate relationship between the ecological business model for new energy vehicles (NEVs) in China and its consequential impact on brand competitiveness. Through a meticulous exploration guided by a series of research questions, the research aims to unravel the underlying mechanisms and dimensions shaping this relationship, thereby providing actionable insights for industry practitioners, policymakers, and scholars invested in the sustainable development of the automotive sector.

In addressing the research inquiries, the study first endeavors to elucidate the components of China's NEV Eco-Business Model. Through the lens of the value ecosystem theory, it embarks on a comprehensive exploration of the interconnected elements shaping the value creation and exchange within the NEV sector. This entails unraveling how various stakeholders contribute to and benefit from the ecosystem, thus painting a holistic picture of the NEV landscape in China.

Building upon the theoretical foundation of the value ecosystem, the study then seeks to construct a structural model detailing the interactions between China's NEV eco-business model and brand competitiveness. This involves grappling with the methodological challenge of effectively evaluating and measuring these interactions. Through a robust framework, the study aims to assess the qualitative and quantitative dimensions of the identified components, ensuring a comprehensive understanding of their impact on brand competitiveness.

Central to the investigation is the significance of the competitive advantage derived from the NEV eco-business model on brand competitiveness. Through empirical analysis, the study endeavors to determine the extent to which a competitive edge in eco-business practices translates into enhanced brand competitiveness within the Chinese NEV market. This involves delving into the multifaceted dimensions of competitive advantage, including value proposition advantage, value creation advantage, value acquisition advantage, and value maintenance advantage.

Moreover, the study delves into the mechanisms through which customer perceived value and ecosystem expansion influence brand competitiveness within the context of NEV eco-business models. This entails an exploration of consumer perceptions, preferences, and the broader impact of ecosystem expansion on brand positioning and recognition. By unpacking these mechanisms, the study aims to provide insights into how NEV enterprises can leverage customer perceived value and ecosystem expansion to bolster brand competitiveness.

Through theoretical exploration and empirical analysis, the study aims to contribute a nuanced understanding of the ecological business model for NEVs in China. By systematically addressing key research questions and objectives, the study seeks to unravel the implications of the NEV eco-business model for brand competitiveness. Furthermore, by offering actionable insights, the research endeavors to inform industry strategies, policy initiatives, and scholarly discourse aimed at fostering the sustainable development of the automotive sector in China and beyond.

In conclusion, the study represents a comprehensive endeavor to elucidate the complex interplay between the ecological business model for new energy vehicles in China and its impact on brand competitiveness. Through theoretical exploration, empirical analysis, and methodological rigor, the research aims to shed light on the mechanisms, dimensions, and

implications of this relationship, thus offering valuable insights for stakeholders across the automotive industry landscape.

Discussion

The discussion of the study delves into the multifaceted implications and findings unearthed through the rigorous exploration of the ecological business model for new energy vehicles (NEVs) in China and its impact on brand competitiveness. By dissecting the theoretical underpinnings, methodological approaches, and empirical insights garnered throughout the research, the discussion aims to offer a nuanced understanding of the complex dynamics shaping the NEV landscape and its ramifications for brand competitiveness.

At the heart of the discussion lies the theoretical framework underpinning the study, anchored in the concept of the value ecosystem. The value ecosystem theory serves as a guiding paradigm, elucidating the intricate web of interactions, exchanges, and relationships that characterize the NEV sector in China. By adopting this theoretical lens, the study transcends traditional models of value creation and exchange, acknowledging the dynamic and interconnected nature of stakeholders within the NEV ecosystem. This theoretical orientation enables a comprehensive exploration of the components, mechanisms, and dimensions shaping the NEV eco-business model and its impact on brand competitiveness.

Central to the discussion is the elucidation of the components comprising China's NEV eco-business model. Through an exhaustive analysis informed by the value ecosystem theory, the study unravels the myriad elements contributing to value creation and exchange within the NEV sector. From value proposition advantage to value maintenance advantage, each component plays a distinct yet interconnected role in shaping the competitive landscape of the NEV market. By mapping out these components, the study provides a comprehensive understanding of the NEV ecosystem, shedding light on the dynamics driving brand competitiveness within the sector.

Building upon this theoretical foundation, the discussion delves into the structural model detailing the interactions between China's NEV eco-business model and brand competitiveness. Through methodological rigor and empirical analysis, the study constructs a robust framework for evaluating and measuring these interactions, thereby providing insights into the qualitative and quantitative dimensions of their impact on brand competitiveness. This structural model serves as a critical tool for industry practitioners, policymakers, and scholars alike, offering actionable insights for enhancing brand competitiveness within the NEV market.

Furthermore, the discussion delves into the significance of competitive advantage derived from the NEV eco-business model on brand competitiveness. By unpacking the multidimensional nature of competitive advantage, the study elucidates how value proposition advantage, value creation advantage, value acquisition advantage, and value maintenance advantage collectively contribute to brand competitiveness within the NEV sector. Through empirical analysis, the study provides empirical evidence supporting the positive impact of competitive advantage on brand competitiveness, thus underscoring the strategic importance of eco-business practices within the NEV market.

Moreover, the discussion explores the mechanisms through which customer perceived value and ecosystem expansion influence brand competitiveness within the context of NEV eco-business models. By examining consumer perceptions, preferences, and the broader impact of ecosystem expansion, the study offers insights into how NEV enterprises can leverage these mechanisms to bolster brand positioning and recognition. From enhancing customer

satisfaction to fostering ecosystem growth, these mechanisms serve as critical drivers of brand competitiveness within the NEV market, underscoring the strategic imperative of aligning eco-business practices with consumer preferences and market dynamics.

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