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CONSUMER ATTITUDES AND PREFERENCES IN THE TRANSITION TO ELECTRIC VEHICLES

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ABSTRACT

The global transition towards electric vehicles (EVs) has sparked significant interest in Kerala, a state at the forefront of India in e-mobility revolution. The study analyses consumer attitudes and preferences towards electric vehicles transition in Kerala, aiming to understand the factors influencing their willingness to transition from conventional engine vehicles. Through the surveys and interviews carried out in the study reveal that Kerala's consumers are enthusiastic about electric vehicles driven by concerns about environmental sustainability, fuel efficiency, and government incentives. However, range anxiety, high upfront costs, and charging infrastructure limitations remain significant barriers. The findings suggest that targeted interventions, such as investing in charging infrastructure, offering attractive financing options, and promoting awareness campaigns, can accelerate electric vehicles adoption in Kerala. This study contributes to the understanding of consumer behavior in the context of sustainable transportation and informs policy and marketing strategies to facilitate a smoother transition to electric vehicles in the region.

KEYWORDS: Electric Vehicles, Consumer Attitudes, Environment, Adoption, Transition

INTRODUCTION

The world is witnessing a significant transformation in the transportation sector, with electric vehicles (EVs) emerging as an effective alternative to conventional engine vehicles. As concern about climate change, air pollution, and energy conservation, governments and consumers alike are turning to electric vehicles as a green solution. Kerala, a leading state in India in the transition to electric vehicles. The success of this transition depends on understanding consumer attitudes and preferences towards electric vehicles .While electric vehicles offer several benefits,

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including reduced greenhouse gas emissions, lower operating costs, and improved performance, they also have challenges such as range limitations, high maintenance costs, and limited charging infrastructure.

The study aims to investigate consumer attitudes and preferences towards electric vehicles adoption in Kerala and also investigates the factors that influence their willingness to switch to electric vehicles. By examining the social, economic, and environmental factors driving consumer behavior, this study seeks to provide insights for policymakers, automakers, and other stakeholders to develop effective strategies for promoting electric vehicles.

In 2015 the Ministry of Heavy Industries and Public Enterprises launched Faster Adoption and Manufacturing of Electric and Hybrid Vehicles in India (FAME) scheme which aims to encourage the use of eco-friendly vehicles both Electric Vehicle and Hybrid vehicles. The scheme also focuses on developing the infrastructure needed for charging these vehicles making easier for people to switch to greener transportation. The National Electric Mobility Mission Plan (NEMMP) 2020 is a key policy document outlining the vision and strategy for accelerating the adoption and manufacturing of Electric vehicles (EVs) in India. This initiative aims to enhance national fuel security, provide affordable and eco-friendly transportation, and help the Indian automotive industry achieve global manufacturing leadership Electric vehicles, which can be either fully or partially powered by electricity, are becoming more popular every day.

Consumer attitudes towards electric vehicles are influenced by numerous factors such as environmental awareness, cost considerations, technological familiarity, and perceived convenience. Additionally, preferences can vary significantly based on demographic variables like age, income, education, and urban versus rural residency. For instance, younger consumers might be more inclined towards electric vehicles due to their environmental benefits and technological appeal, while older consumers might prefer due to reliability and ease of use.

This study aims to delve into the specifics of consumer attitudes and preferences in Kerala as the state navigates the transition to electric vehicles. By examining the motivations, concerns, and expectations of consumers, policymakers and industry stakeholders can better align their strategies to facilitate the adoption of Electric vehicles. Understanding these consumer perspectives will not only aid in designing effective policies and incentives but also in addressing barriers to adoption, thereby accelerating Kerala's journey towards a greener and more sustainable transportation future.

LITERATURE OVERVIEW

Many researchers had made several attempts in order to analyse the factors influencing the purchase of electric vehicles, their impact on environment and barriers for adoption of electric vehicles. There are many articles and thesis has already been produced in this area. The researchers found that, there will be a controversy in usage of Electric vehicle reduces the air pollution, so there will be a conduct number of research based on such controversies and there will be a number of factors directly and indirectly affect the attitude and preference among peoples towards electric vehicle. The successful adoption of Electric vehicles depends on overcoming financial, infrastructural, and performance-related barriers. Effective government policies, such as financial

incentives and investment in charging infrastructure, are crucial in facilitating this transition. Additionally, increasing public awareness and altering societal attitudes towards Electric vehicles are essential for broader acceptance. By addressing these factors, India and other countries can accelerate the shift towards sustainable transportation, significantly reducing environmental pollution and dependency on fossil fuels.

OBJECTIVE

The main objective of the study is to analyse the different factors that influence consumer attitudes and preferences towards the purchase of electric vehicles and thereby in the transition process.

METHODOLOGY

The study is descriptive and analytical in nature and will conduct among people who owned electric vehicles. Study used both Primary and Secondary data & primary data is collected through a survey using questionnaires/schedule and secondary data were collected from journals, books, related to the study. In order to derive the desired sample size stratified random sampling technique is used.

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RESULTS

1. Demographic profile of respondents

- **Age Distribution**: Most of the respondents are (90%) are in the age group of 21 to30 and 7% are the age group of below 21 and 3% of the respondents are belongs to the group of 31 to 40.
- **Income Levels**: 73% of them have a monthly income up to 25000 and 13% of them have an income between 25000-50000 .10% of respondent have monthly income ranges 50000-100000 and only 4% have monthly income more than 100000.
- **Educational Background**: 53% of total respondent are graduates and 37% are postgraduates and 10% respondent have higher secondary education.

2. Attitudes towards Electric Vehicles

- **Environmental Impact:** A significant 50% of respondents expressed a positive attitude towards Electric Vehicles due to their lower environmental impact compared to traditional vehicles.
- **Cost Considerations**: The lower running and maintenance costs of Electric Vehicles were appreciated by most the respondents but the higher initial purchasing cost was a major concern for 53 % of the respondents.

- **Technological Factors**: Majority (70%) of respondents are satisfied with the reliability and performance of Electric Vehicles technology, but few have (10%) some concerns about battery life and driving range.

3. Preferences towards Electric Vehicles

- **Environmental Considerations**: The 50% of the respondent says that they consider Environmental impact while purchasing the vehicle.
- **Charging Infrastructure**: Availability of convenient and fast-charging stations was a crucial factor for 60% of the respondents.
- **Brand Preference**: Established automotive brands with a reputation for quality were favoured over newer, less-known Electric Vehicles manufacturers.
- **Government initiatives:** 50% of the respondent agreed that they were motivated by various government incentives to purchase an electric vehicle.

4. Barriers to Adoption

- **Initial Cost**: The high upfront cost of EVs was identified as the most significant barrier, with 60% of respondents indicating that they would wait for prices to decrease or for more financial incentives from the government.
- **Charging Infrastructure**: Limited availability of charging stations was a major concern, particularly for those living in rural areas. About 40% of respondent doesn't have charging station near residence and work place.
- **Overall satisfaction:** 80% of respondents are satisfied with the current range of electric vehicles in the market.

FINDINGS

The findings from the study highlight several key aspects of consumer attitudes and preferences that can inform policymakers and industry stakeholders in Kerala's transition to electric vehicles.

Demographic insights: The strong interest among younger, educated, and middle-income consumers suggests targeted marketing and education campaigns could be effective in accelerating Electric Vehicles adoption within these groups. Most of the consumers are likely to be driven by environmental consciousness and technological enthusiasm.

Enhancing awareness and confidence: While general awareness about Electric Vehicles is high, there is a need for more detailed information to address specific concerns such as battery life, range, and overall cost of ownership.

Addressing cost concerns: Government incentives, such as subsidies and tax rebates, could play a significant role in reducing the cost related barriers to Electric Vehicles purchase.

Infrastructure development: The development of a widespread charging infrastructure is crucial to alleviating range anxiety and making Electric Vehicles a viable option for more consumers.

Initiatives to expand charging networks, particularly in rural areas, can significantly boost consumer confidence and adoption rates.

Brand trust: Established automobile brands can use their existing reputation for quality and reliability to gain consumer trust in their Electric Vehicles offerings.

CONCLUSION

In conclusion, while there are clear challenges to the widespread adoption of electric vehicles in Kerala, understanding and addressing consumer attitudes and preferences can pave the way for a successful transition. By focusing on education, financial incentives, infrastructure development, and leveraging brand trust, stakeholders can effectively promote the adoption of EVs and contribute to a more sustainable transportation future in Kerala. Making electric vehicles (EVs) more popular needs a joint effort from the government and the industry. The government should offer incentives and subsidies to make electric vehicles cheaper, while the industry needs to build more charging stations to make them practical.

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