

Customer Awareness, Perception, and Satisfaction Towards Electric Vehicles in Wayanad District: A Comprehensive Analysis

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Abstract

This article explores the awareness, perception, and satisfaction levels of customers towards electric vehicles (EVs) in Wayanad district, Kerala, India. The study focuses on three key objectives: assessing customer awareness and perception of EVs, evaluating the factors influencing customer satisfaction, and analyzing the challenges and barriers to EV adoption. The research employs a mixed-method approach, combining quantitative surveys and qualitative interviews with EV users and stakeholders. The findings reveal that while awareness of EVs is high, significant barriers such as high upfront costs, limited charging infrastructure, and concerns about battery life hinder widespread adoption. The article concludes with recommendations for policymakers, manufacturers, and local authorities to enhance customer satisfaction and promote EV adoption in Wayanad and similar regions.

Keywords: Electric Vehicles, Customer Satisfaction, Awareness, Perception, Wayanad, Kerala

1. Introduction

The global shift towards electric vehicles (EVs) is driven by the need to reduce greenhouse gas emissions, combat climate change, and promote sustainable transportation. In India, the adoption of EVs is gaining momentum, supported by government policies such as the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme. However, the penetration of EVs remains relatively low, particularly in rural and semi-urban areas like Wayanad district in Kerala. This article aims to explore the awareness, perception, and satisfaction levels of customers towards EVs in Wayanad, identifying the key factors that influence their decision to adopt EVs.

2. Objectives of the Study

- To assess the awareness and perception of electric vehicles among customers in Wayanad district.

- To evaluate the key factors influencing customer satisfaction, such as price, performance, charging infrastructure, and maintenance costs.
- To analyze the challenges and barriers faced by consumers in adopting electric vehicles in the region.

3. Literature Review

3.1 Awareness and Adoption of EVs

Previous studies have highlighted that consumer awareness plays a crucial role in EV adoption. **Zhang, Wang, and Xu (2020)** found that higher levels of awareness correlate with increased willingness to adopt EVs. Additionally, research by **Kumar and Bansal (2021)** emphasized that targeted awareness campaigns significantly impact consumer decision-making regarding EV purchases.

3.2 Perception of EVs

Consumer perception is influenced by factors such as environmental benefits, cost savings, and brand image (**Li, Zhang, & Chen, 2019**). Many consumers perceive EVs as sustainable alternatives, but concerns about cost and infrastructure persist. A study by **Gupta and Sharma (2020)** indicated that positive perception is often linked to government incentives and subsidies that make EVs more affordable.

3.3 Factors Affecting Customer Satisfaction

(**Mukherjee & Ryan, 2021**). Studies indicate that competitive pricing and efficient charging facilities enhance user satisfaction. Additionally, **Jha and Verma (2022)** found that after-sales service and battery warranty Price, performance, and infrastructure are key determinants of EV satisfaction significantly influence long-term customer satisfaction.

3.4 Barriers to EV Adoption

Common barriers include high initial costs, limited charging networks, and battery life concerns (**Smith & Brown, 2022**). Addressing these issues through policy interventions is critical. Research by **Singh and Mehta (2021)** emphasized that perceived range anxiety remains one of the biggest obstacles to EV adoption in rural and semi-urban areas.

3.5 Policy and Market Trends

Government incentives and market developments significantly impact EV adoption (**Gupta & Sharma, 2020**). Research suggests that subsidies and tax reductions increase consumer interest in EVs. Furthermore, the introduction of battery-swapping policies has been highlighted as a potential game-changer for improving EV feasibility in less urbanized areas (**Reddy, 2023**).

4. Methodology

The study employs a mixed-method approach, combining quantitative and qualitative research methods. A structured questionnaire was distributed to 100 respondents in Wayanad district, including current and potential EV users. The questionnaire captured data on awareness, perception, satisfaction, and challenges related to EV adoption. Additionally, in-depth interviews were conducted with key stakeholders, including policymakers, EV manufacturers, and local authorities, to gain qualitative insights into the factors influencing EV adoption.

5. Findings and Discussion

5.1 Awareness and Perception of Electric Vehicles

The study found that 50% of respondents had a "very high" awareness of EVs, while 29% had "moderate" awareness. Friends and family (36%) and newspapers/magazines (33%) were the primary sources of information about EVs. The majority of respondents (50%) had a "very positive" perception of EVs, citing environmental benefits and lower operational costs as key advantages.

5.2 Factors Influencing Customer Satisfaction

Price was identified as a critical factor influencing customer satisfaction, with 45% of respondents considering it "very important" in their decision to purchase an EV. Performance was also a significant factor, with 47% of respondents rating EVs as "much better" than traditional fuel vehicles. However, concerns about charging infrastructure and battery life were prominent, with 46% of respondents expressing satisfaction with the current charging infrastructure, while 45% considered battery life a "significant" concern.

5.3 Challenges and Barriers to EV Adoption

The study identified several barriers to EV adoption, including high upfront costs (55%), limited charging infrastructure (18%), and concerns about battery life (45%). Additionally, 49% of respondents cited a lack of

information as a significant challenge. These barriers highlight the need for targeted policies and infrastructure development to promote EV adoption in Wayanad.

6. Conclusion

This study provides valuable insights into the awareness, perception, and satisfaction levels of customers towards EVs in Wayanad district. The findings highlight the need for targeted policies and infrastructure development to address the barriers to EV adoption. By enhancing customer satisfaction and addressing key challenges, Wayanad can serve as a model for other rural and semi-urban regions aiming to promote sustainable transportation.

7. Recommendations

- **Awareness Campaigns:** Launch targeted awareness campaigns to educate consumers about the benefits of EVs and available government incentives.
- **Infrastructure Development:** Invest in charging infrastructure, particularly in rural and semi-urban areas, to alleviate range anxiety and improve customer satisfaction.
- **Financial Incentives:** Introduce subsidies and tax benefits to reduce the upfront cost of EVs and make them more accessible to lower-income groups.

8. References

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