



Exploring Customer Perspectives on Electric Vehicles: Opportunities and Barriers

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Abstract

Electric vehicles (EVs) represent a transformative mode of transportation, offering numerous benefits such as zero air and noise pollution, along with a more environmentally friendly approach to commuting. As environmental concerns continue to grow, there is an increasing shift towards more sustainable modes of transportation. This shift has contributed to a significant rise in the manufacturing and sales of electric vehicles, with more people becoming aware of the positive impact they can have on the environment. This study indicates that a significant proportion of EV users belong to the younger age group, who are generally more inclined to purchase electric vehicles. This trend suggests that, younger consumers are more open to adopting newer, environmentally friendly technologies. The study also highlighted several key factors influencing the decision to purchase electric vehicles, including the positive environmental impact of EVs, the financial incentives available (such as attractive insurance options), and the lower operational costs associated with EV ownership. In conclusion, the study suggests that the combined influence of environmental concerns and financial benefits plays a crucial role in driving the adoption of electric vehicles in Mysore. The younger demographic, in particular, is highly motivated by these factors, as they prioritize sustainability and cost-efficiency when making purchasing decisions. As more individuals recognize the benefits of electric vehicles, the trend towards their adoption is likely to continue growing in the present world.

Key Words: *EV Vehicles, Green vehicles, financial benefits and environment factors etc.*

INTRODUCTION

Global Trends in EV Adoption: Review global trends in EV adoption, focusing on factors like technological advancements, government policies, and infrastructure development. India's vulnerability to climate change has become increasingly evident, as the country's rank in the global Climate Risk Index has worsened.

This further emphasizes the urgent need for India to prioritize electric vehicles as part of its strategy to reduce dependence on fossil fuels and combat climate change. India is working towards becoming a global hub for electric vehicle manufacturing, but the road ahead presents several challenges, particularly in infrastructure development and creating a competitive advantage over current global leaders in electric mobility. Governments worldwide are implementing policies to promote electric vehicles (EVs) in order to reduce reliance on oil, decrease greenhouse gas emissions, and improve air quality. In India, the opportunities for a cleaner, more sustainable mobility future are vast. However, the country faces significant challenges in accelerating the transition to electric mobility.

Electric vehicles represent a promising solution to tackle these issues and could play a significant role in India's future transportation landscape, reducing its carbon footprint while contributing to cleaner and greener cities. However, a concerted effort from the government, industries, and consumers will be essential to overcome the challenges and ensure the widespread adoption of EVs. Ministry of Heavy Industries and Public Enterprises launched the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme to incentivize the production and promotion of eco-friendly vehicles. However, the COVID-19 pandemic has highlighted the need for a policy shift across various sectors, including the electric vehicle market. The government must revisit and refine its approach to EVs to keep pace with changing economic and environmental needs. India's government has set an ambitious target of achieving a 30% market share for electric vehicles by 2030. To support this goal, various measures are being considered, such as reducing GST on EVs, offering tax exemptions on loans for EV purchases, providing custom duty exemptions on EV parts, and setting up more charging infrastructure. By adopting a proactive, consultative, and progressive approach to promoting clean mobility, both central and state governments in India are making significant strides towards creating an electric future. Despite the challenges, these efforts are crucial for the country's sustainable development and its ability to meet both environmental and energy demands in the coming years.

Literature Survey:

Muthupandi (2017) in their study on “Customer satisfaction and expectation towards after sales service of TVS Motors Ltd in Sivakasi” stated that customer satisfaction is a strategic goal of any organization. The data required for study is collected through a structural questionnaire. It includes opinion of customer's had positive attitude towards usage of EV vehicles usage

Dennis Joseph (2018) in their study on “After-sales service quality satisfaction in Indian automobile industry” stated that automobile industry, after-sales service plays an important role whether it is before buying a product or after buying the product. In this paper SERVQUAL model was applied for measuring quality of service given to the customers and customer satisfaction in an automobile industry.

Abhishek Patil,(2019), this study gave importance to advantages of Electric Vehicle as a new way of transportation having no noise, air pollution and an environmentally friendly way to commute. India being a major market, this study was conducted to check the acceptability of people towards electric vehicle and its effect on automobile industry.

Pretty Bhalla (2021) empathized on manufacturing and sales of Electric Vehicles. Many factors contribute to influence the purchase decision of car buyers such as environmental issues, cost, trust, technology advancement, and infrastructure and society acceptance. To promote sales of electric vehicles government has to play a lead role in policies, infrastructure, subsidy, lower bank rate of interest etc.

Moyo.N, (2023) analyzed how environment concern plays a significant influential role in the purchase decision of electric vehicles, the findings reflect the consumers who are environmentally concerned are more willing to purchase electric vehicles to protect their environment from air pollution. Some of the most influential value orientations are egoistic, social-altruistic and biosphere more identified in purchase intention of electric vehicles.

Mandys(2025), conducted a study on electric vehicles and consumer choices. He opinioned that main advantage lies in their significant economic benefits due to the much higher fuel efficiency, and substantial environmental benefit of lower greenhouse gas emissions. However, the market share of EVs in the UK remains low and their benefits will not be realized unless the government and the manufacturers can gain crucial information, necessary to effectively support and speed up the adoption of EVs.

Research Methodology:

☐ Primary Data Collection:

- The primary data for the study was gathered by issuing questionnaires to EV users or customers in Mysore City.
- The sample size for the study was 100 customers, selected using simple random sampling, which is considered an optimal sample size for this type of study.

☐ Secondary Data Collection:

Secondary data was collected from various sources, including:

- The Internet for general information and trends.
- Refereed journals to gather peer-reviewed articles and studies on electric vehicles.
- Dissertations and peer-reviewed journals specifically related to marketing and consumer behavior in the context of electric vehicles.

- In the context of statistical tools used in this paper is descriptive statistics and One Way ANOVA and Independent Sample T-Test etc.

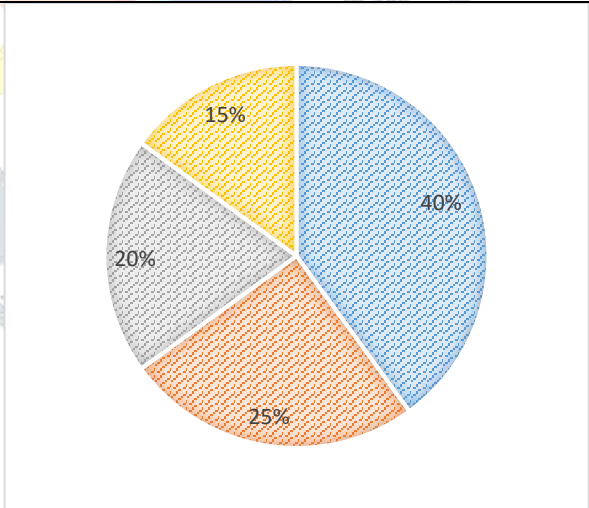
Objectives of the Study:

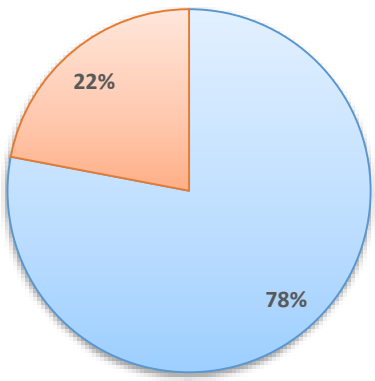
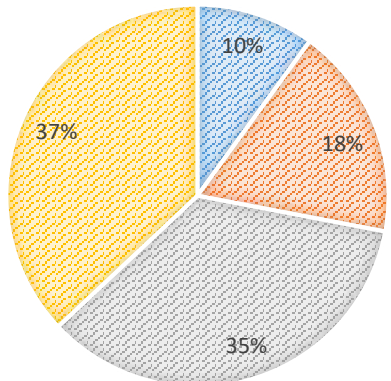
1. To assess the socio-economic variables of the electronic vehicle users or customers.
2. To analyses the customer insight towards purchase of electronic vehicle.

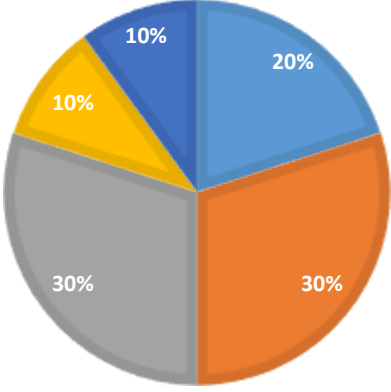
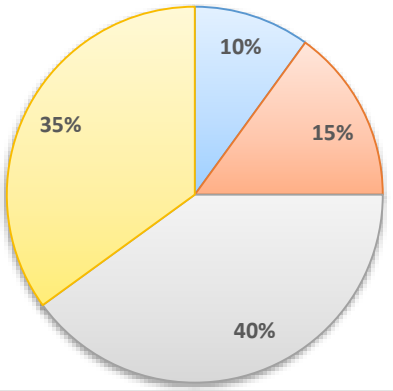
HYPOTHESES:

1. *H0: There is no significant difference in the demographic characteristics of electric vehicle users or customers.*
- H1: There is a significant difference in the demographic characteristics of electric vehicle users or customers.*

Table No.1 explains the demographic variables of customer

Particulars	Percentage	Charts
Age of the customer: a) Less than 25 years b) 25-35 years c) 35-45 years d) Above 45 years	40% 25% 20% 15%	 The age distribution of electric vehicle (EV) customers in Mysore City shows a significant inclination towards younger individuals. A majority of the respondents (40%) fall under the age category of less than 25 years. This suggests that younger customers, likely in their early career stages or students, are more interested in purchasing electric vehicles.

Gender of the customer: a) Male b) Female	78% 22%	 The gender distribution shows a clear dominance of male customers, with 78% of respondents identifying as male, while only 22% are female. This could reflect the general trend seen in many markets where men tend to be more early adopters of new technologies, such as electric vehicles.
Qualification of the customer: a) SSLC b) PUC c) Graduation d) Post graduation	10% 18% 35% 37%	 The educational background of EV customers in Mysore reveals that the majority (72%) of respondents are well-educated, with 35% having completed their graduation and 37% holding a post-graduate degree. Only 18% have completed PUC (Pre-University Course), and 10% have completed SSLC (Secondary School Leaving Certificate). This suggests that a higher level of education is associated with a greater interest in electric vehicles, possibly due to increased awareness of environmental issues, technological innovation, and the long-term financial benefits of EV ownership.

Working position of customers: a) Employees b) Business c) Professionals d) Students e) Housewife	20% 30% 30% 10% 10%	 In terms of employment status, the largest group of respondents (30%) are business owners, followed closely by professionals (also 30%). These two groups make up the majority of the survey sample, which could suggest that individuals in business or professional fields may be more inclined to invest in electric vehicles due to their potential long-term cost savings and eco-friendly appeals.
Annual Income: a) Less than 2.5 lakh b) Between 2.5 to 5 lakh c) Between 5 to 7.5 lakh d) Above 7.5 lakh	10% 15% 40% 35%	 The income distribution of the respondents indicates that electric vehicle customers in Mysore generally belong to the middle to upper-income brackets. A substantial portion (75%) of the respondents earn between Rs. 5 lakh and Rs. 7.5 lakh annually, with 35% earning above Rs 7.5 lakh respectively.

Source: Field Survey.

In summary, the demographic data indicates that the customer base for electric vehicles is predominantly younger, male, well-educated, and economically stable. Majority of respondents are business owners or professionals with higher income levels, suggesting that these groups may be more inclined towards purchasing EVs. However, the low representation of female customers and the relatively small proportion of older individuals indicate potential

areas for targeted outreach and marketing. Understanding these demographic trends can help manufacturers and marketers tailor their strategies to better meet the needs of the growing EV market in Mysore City.

2. *H0: There is positive variation between customer perceptions intent purchase of EVs*

H2: There is a negative variation between customer perceptions intent purchase of EVs

Table No. 2 presents customer insights regarding the purchase of electric vehicles (EVs) in Mysore City. This table highlights various statements that reflect the positive perceptions customers have towards purchasing EVs. Among these statements, the highest mean values were recorded for three key perceptions, EVs have an attractive color and design (Mean = 4.74), EVs take a long time to recharge (Mean = 4.65) and EVs are more convenient for both short and long trips (Mean = 4.66). These three factors emerged as the most important customer perceptions, suggesting that the attractiveness of the vehicle's design, its recharging time, and its convenience for different types of trips are major considerations influencing the purchase decision for EVs in Mysore City. In conclusion, the findings indicate that customer perceptions related to the attractive design of electric vehicles, long recharge time, and convenience for short and long trips play a significant role in the decision to purchase EVs in Mysore City. These factors, with p-values less than 0.05 are statistically significant, on the other hand, perceptions about the eco-friendliness respectively. The data of electronic vehicle performance is high speed, electronic vehicle takes long recharge time, electronic vehicle lack of consumer choices, electronic vehicle is attractive color and design, lack of trust to new technologies, unwillingness to change a lifestyle and EV vehicles had long lasting battery capacity these variables, shows that less than p value is 0.05, therefore it is significant. The null hypothesis is rejected and alternative hypothesis is accepted. Further the EV vehicles are eco-friendly, EV vehicles will gain more popularity in future, difficulty to find out charging stations, EV vehicles more convenient for short and long trip and also EV vehicles are cost effective variables, shows that more than p value is 0.05, and therefore it is significant. The null hypothesis is accepted and alternative hypothesis is rejected.

Table No.2 Customer insight towards purchase of electronic vehicle and Statistical results of Independent Sample T-Test

Statements	Mean	Levene's Test for Equality of Variances		T-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	t	df	
Electronic vehicle performance is high speed	4.05	3.070	0.013	1.682	99	0.000
Electronic vehicle takes long recharge time	4.66	3.125	0.027	1.574	99	0.000
Electronic vehicle lack of consumer choices	4.31	3.150	0.170	1.570	99	0.001
Electronic vehicle is attractive color and design	4.65	3.400	0.289	1.568	99	0.000
Lack of trust to new technologies	3.86	3.850	0.858	.0638	99	0.000
Unwillingness to change a lifestyle	4.21	3.600	0.730	0.988	99	0.000

EV vehicles are eco-friendly	4.55	3.850	0.858	0.638	99	0.712
EV vehicles will gain more popularity in future	3.26	3.600	0.512	1.105	99	0.615
EV vehicles more convenient for short and long trip	4.74	3.800	0.809	0.745	99	0.511
EV vehicles are cost effective	4.01	3.450	.0477	1.249	99	0.744
EV vehicles had long lasting battery capacity	3.78	3.425	0.356	1.421	99	0.000
Difficulty to find out charging stations	2.98	2.147	0.221	1.112	99	0.544

Source: Field Survey.

RECOMMENDATIONS FOR THE STUDY

This study primarily recommends that an increase in the number of charging stations will encourage more people to consider purchasing electric vehicles (EVs). The availability of convenient and accessible charging infrastructure is a key factor that can help address concerns about the practicality and feasibility of owning an EV, thereby increasing consumer interest. Additionally, it is suggested that customers should place greater emphasis on electric vehicles to help reduce pollution and curb greenhouse gas emissions. By choosing EVs over traditional fuel-based vehicles, individuals can play a significant role in promoting a cleaner and more sustainable environment. With petrol prices steadily rising, the issue of fuel costs is becoming increasingly burdensome for consumers. This challenge can be addressed by encouraging the adoption of electric vehicles, which offer lower operational costs in comparison to gasoline-powered cars. In this context, promoting electric vehicles can provide a long-term solution to rising fuel expenses. Furthermore, the study emphasizes that the government should provide more incentives and subsidies for purchasing electric vehicles. Financial assistance or discounts could make EVs more accessible to a wider range of consumers, particularly in light of the higher upfront costs compared to traditional vehicles etc.

CONCLUSION

The findings of the study reveal that the majority of customers in Mysore City believe that electric vehicles are visually appealing, particularly due to their attractive color and design. Additionally, many customers noted that the long recharge time of EVs and their convenience for both short and long trips are important factors influencing their purchase decisions. These perceptions highlight the significant role that design, practicality, and recharge time play in shaping the decision to purchase an electric vehicle. Furthermore, customers are aware of the global climate crisis and are open to changing their purchasing habits in favor of more sustainable options. Cost is also a critical factor when considering the purchase of an electric vehicle. The study suggests that if sufficient charging infrastructure is available, respondents are more likely to accept electric vehicles as a viable future buying option. However, there are also several challenges limiting consumer confidence in electric vehicles. These include the

high initial cost of EVs, the limited number of charging stations, and the long recharge time required for the vehicle's battery. These factors are seen as barriers that need to be addressed in order to increase the adoption of EVs in the market.

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