

Consumer Behaviour on Electric Vehicles

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Abstract

This project aims to map the consumer perception toward e-vehicle in Vadodara city. Every day we come across so many topics and articles which states the importance of E-Vehicles and how government around the world are implementing policies to promote E-Vehicles to reduce the dependences on oil, decrease greenhouse gasses and improve air quality. A major pollutant comes from Metropolitan cities and hence it is important for people living in these cities to understand and do their bit to reduce the consumption of life-threatening gasses and pollutants. This project is aimed to capture the views, sentiments and perception on the awareness and likeliness to buy the vehicles so that sustainability in environment can be maintained. With the increasing concern over environmental sustainability and the need to reduce greenhouse gas emissions, electric vehicles (EVs) have emerged as a promising alternative for conventional gasoline-powered cars. This study investigates the consumer attitude towards EVs as a viable option for mobility.

Key Words: Consumer Attitude, Perception, Environmental Consciousness.

1. Introduction

The growth of air pollution in Indian urban areas was a cause for concern Manufacturers. There are more than 25 major Indian cities among the 100 most polluted urban areas in the country World-Nation. The cause for the production of air pollution in urban areas is associated with an array of Sources but the division of transport makes a crucial commitment. Transport discharges are critical division is minimal [1]. The antagonistic influence of air quality on human health and the economy is well known and, in this sense, producers are dreaming about reducing the impact on earth on a couple of options [2]. Electric cars are seen as a potential choice for transportation, what is in addition, a few national governments have successfully revised innovation development plans [3]. Indigenous governments are swift to advance electric vehicles as a green alternative for portability, moreover find it a realistic solution to the elimination of air emissions in urban areas.

1.1. Need of the Study

Marketing starts with identifying needs of customers and ends in satisfying those wants [4]. The goal of marketing is to attract new customers by promising superior value and to keep current customers by delivering satisfaction based on their

preferences retaining them [5].

1.2. Problem Statement

This project has been titled “A STUDY ON CONSUMER ATTITUDE TOWARDS ELECTRIC VEHICLES AS AN ALTERNATIVE FOR MOBILITY” “To Study the market of Ather the consumer response to the bike and needed improvement area. The Study would help to understand the consumer satisfaction to their expectation.

1.3. Scope of the Study

The scope of the study on consumer attitude towards electric vehicles as an alternative for mobility encompasses several key areas. First and foremost, it delves into the perceptions and awareness among consumers regarding electric vehicles. This entails understanding how consumers view electric vehicles in terms of their environmental benefits, cost-effectiveness, performance, and overall suitability for their mobility needs.

1.4. Objectives

- To understand the role of electric vehicles in environmental sustainability.
- To identify the factors that influence customer shift to electric vehicle.

- To assess customer attitude towards electric vehicles.

1.5. Methodology

Primary data is used, questionnaires are formed. The secondary data is used for reference. It is descriptive research. The sample technique is done on the basis of simple random sample, with a sample size of 100 respondents.

2. Review of Literature

Lingzi Jin, Peter Slowik (2017), in the article “Electric vehicles consumer awareness” published in the journal “The international council on clean transport”. The objectives of this review aimed to systematically identify that to know what extent the consumers are aware about electric vehicles and to know the initiations taken by the government to promote the electric vehicle to the market.

Mr. Nattpon Dolcharumanee (2018), in the article “Factors Affecting the Decision for Purchasing Electric Vehicles” Published in the “Bangkok University” The objectives of this reviewed article help to know the various factors like price, availability, service after sales, view of the vehicle, charging outlets, efficiency of the battery used, plug in and non-plug-in charging vehicles which affects the decision of purchasing electric vehicle.

Mrinal Pandey, Midhun Mohan, Dr. Subha (2021), in the article “Customer Perception Towards Purchase Intention” published in the “Journal of Emerging Technologies and Innovative Research (JETIR)” The objectives of this journal is to know the buying intension of the customers and to know what affects the intension of buying the electric vehicle according to their view on EVs and to know the impact towards purchase decision as benefits towards environment.

Gabriel Pedrosa and Helena Nobre (2019) article named “The influence of consumer mobility concerns on electric vehicle adoption” was published in the journal “world review of intermodal Transportation Research”. As from past decades the users are always stick on to the only vehicle who have comfort riding as compared to electric vehicles as electric vehicles are complicate to operate and

drive as compared to fuel vehicles.

Criag Morton (2011) article named “Electric Vehicles: Will Consumers get charged up?” Published in the conference paper. The objectives of this reviewed conference paper are to know consumer purchase intensions based on the evolution of the market from stock to electric.

3. Data Analysis

3.1. Stastical Tool

Hypotesis Testing

H01: There is no significant difference in customer attitude towards electric vehicles in Table [1-4].

Table 1 Summary Output

Regression Statistics	
Multiple R	0.775075
R Square	0.600741
Adjusted R Square	0.201483
Standard Error	17.63205
Observations	3

Table 2 Customer Attitude and Electric Vehicles

customer attitude	electric vehicles
56	57
24	42
20	1

Table 3 Regression

	d f	SS	MS	F	Significa nce F
Regres sion	1	467.7 773	467.7 773	1.504 643	0.435424
Residu al	1	310.8 893	310.8 893		
Total	2	778.6 667			

Table 4 Intercept

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95%	Upper 95%
Intercept	15.74772	17.58303	0.89562	0.535019	-207.666	239.1613	-207.666	239.1613
electric vehicles	0.527568	0.430093	1.226639	0.435424	-4.93728	5.992415	-4.93728	5.992415

H01: There is no significant effect of electric vehicles on environmental sustainability.

The summary output represents a linear regression analysis between customer attitude and electric vehicles. The regression model is not significant ($p > 0.05$), indicating that customer attitude does not affect electric vehicles, so accept H01 and reject Ha1. The R value is 0.600741 implies that 60.0% of the variability of no risk electric vehicles, overall is not significant for customer attitude on electric vehicles in Table [5-8]

Table 5 Environment Reason and Electric vehicles

Environment reason	electric vehicles
44	34
53	62
2	4

Table 6 Summary Output

Regression Statistics	
Multiple R	0.943546
R Square	0.890279
Adjusted R Square	0.780558
Standard Error	13.58762
Observations	3

Table 7 Regression

	df	SS	MS	F	Significance F
Regression	1	1498.043	1498.043	8.114045	0.214935
Residual	1	184.6235	184.6235		
Total	2	1682.667			

Table 8 Intercept

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95%	Upper 95%
Intercept	0.155196	14.043	0.011051	0.99265	-17.8278	17.884	-17.8278	17.884
Environment reason	1.005398	0.352955	2.84816	0.0149	-3.47932	5.4907	-3.47932	5.4907

Interpretation: The summary output represents a linear regression analysis between environment reason and electric vehicles. The regression model

is not significant ($p > 0.05$), indicating that environment reason does not affect electric vehicles, so accept H_0 and reject H_a . The R value is 0.890279 implies that 89% of the variability of no risk electric vehicles, overall is not significant for environment reason on electric vehicles.

4. Findings

- Electric vehicles are more convenient for long trips than short trips its Represents 50% Agree 43% Neutral and 7% Disagree.
- vehicles will gain more popularity in future its Represents 57% Agree 42% Neutral and 1% Disagree.
- vehicles are eco-friendly than petrol and diesel its Represents 54% Agree 43% Neutral and 3% Disagree.
- Performance of electric vehicles are high its Represents 34% Agree 62% Neutral and 4% Disagree.

5. Suggestions

There are only few advertisements in newspapers and TVs. Thus, maximum advertisements need to be put up in these Medias as they reach wider audiences.

- The price of the electric bikes needs to be decreased it can be done by adopting sophisticated technologies and carrying out mass productions or some discounts on price or offers should be given in order to increase the sales
- More number of service centres need to be opened at least in major areas to cater to the problems & needs of the customers when needed.
- As most of the people prefer high speed the speed of the electric bikes need to be improved so as to increase the sales of the E-Bikes.
- We need to have a greater number of dealers covering major urban areas and the distribution network should be made strong.

Conclusion

The analysis of the tracking dataset pointed to a tendency that e-bikers ride more often along routes with a higher exposure to vehicular traffic. The rider's interviews supported this tendency: E-

bikers rated "low traffic volume" to be a less important route choice factor than cyclists. The theory of the lower aversion of bikers to vehicular traffic is furthermore supported by the fact that more traffic lights occur per ridden kilometre along the routes chosen by e-bikers compared to the routes chosen by cyclists. In the urban context, traffic lights most often occur on streets with a higher volume of vehicular traffic. Bikers as well as e-bikers rated "minimal distance" to be the most important route choice factor.

Reference

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