A STUDY ON CUSTOMER KNOWLEDGE ON ELECTRIC VEHICLE

Project Report Submitted To
MAHATMA GANDHI UNIVERSITY, KOTTAYAM
IN PARTIAL OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE

BACHELOR OF COMMERCE
(2020-2023)

Submitted By
ELIZABETH VIJOY (REG NO: 200021072319)
M.S ANN MARIA (REG NO: 200021072324)
ANNA MARIA (REG NO: 200021072275)
JULIA ROSE JOY (REG NO: 200021072287)

UNDER THE SUPERVISION OF
DR. TESSY THOMAS
(Assistant Professor)

BHARATA MATA COLLEGE THRIKKAKARA
KERALA
MARCH 2023
BHARATA MATA COLLEGE THRIKKAKARA

RESEARCH AND POST GRADUATE DEPARTMENT OF COMMERCE
(Affiliated to Mahatma Gandhi University, Kottayam)
THRIKKAKARA P.O, COCHIN 682 021

DATE: 31-3-2023

CERTIFICATE

This is to certify that this project entitled **"A STUDY ON PREFERENCE OF CUSTOMER KNOWLEDGE ON ELECTRIC VECHICLE"** is a bona fide record of work carried out by ELIZABETH VIJOY, M.S ANN MARIA, ANNA MARIA AND JULIA ROSE JOY under my supervision and guidance in partial fulfillment of the requirements for the award of the Degree of Bachelor of Commerce of the Mahatma Gandhi University. It has not previously formed the basis for the award of any Degree, Fellowship, Associateship etc.

They are allowed to submit this Project Report.

DR. SR. TESSY THOMAS   DR. PONNY JOSEPH
Assistant Professor   Head of the Department
Bharata Mata College   Bharata Mata College
Thrikkakara, KochI   Thrikkakara, Kochi

DECLARATION

We hereby declare that the project **"A STUDY ON CUSTOMER KNOWLEDGE ON ELECTRIC VEHICLE"** is our original work and has not been submitted earlier to MG University or to any other universities. We have undertaken this project work in partial fulfillment of the requirements of B.com 2020-2023 in Bharata Mata College, Thrikkakara, Ernakulam affiliated to MG University Kottayam.

ELIZABETH VIJOY

M.S ANN MARIA

ANNA MARIA

JULIA ROSE JOY

THRIKKAKARA
31-03-2023

ACKNOWLEDGEMENT

CONTENTS:

LIST OF TABLES

LIST OF FIGURES

CHAPTER – 1
INTRODUCTION

1.1. INTRODUCTION:

Transportation plays a crucial role in our daily lives, but the traditional combustion engine is becoming outdated. Petrol or diesel vehicles are highly polluting and expensive that made people think of a better option. Hence petrol- or diesel-powered vehicles are being replaced by electric vehicles. Electric vehicles (EVs) are vehicles that are powered by an electric motor and battery, instead of an internal combustion engine that runs on gasoline or diesel. They use electricity from an external power source to charge their batteries, which then powers the vehicle's motor.

Climatic changes have become a topic of discussion among the public. EV's are defined as a possible solution to overcome environmental concerns. Around 24% of CO2 emissions from fuel combustion are from the transport sector, out of which 80% is contributed by road transportation. Air pollution and growing environmental concerns have led to responsible action from businesses and consumers. Many governments all around the world are trying to promote EV. In recent years, Plug-in Hybrid Electric Vehicle and Battery Electric Vehicles are becoming more prominent for sustainable transportation.

The fuel efficiency of electric vehicles is also impressive when compared to petrol and diesel vehicles. According to the European Union, electric vehicles use up to 70% less energy than petrol and diesel vehicles, which can help reduce carbon emissions significantly. Not only that, but electric vehicles are also quieter and smoother to run than petrol- and diesel-powered vehicles.

This project is a study conducted to analyze the scope of EVs in our society and the knowledge of customers concerning it and their preference.

1.2. STATEMENT OF PROBLEM

This study aims to investigate the level of customer knowledge and awareness about EVs and identify the key factors that influence their perceptions and attitudes towards these vehicles. The findings of this study can be used to develop effective marketing strategies and educational programs that can help increase customer knowledge and adoption of EVs.

1.3. SIGNIFICANCE:

Electric vehicles are becoming very common now-a-days. Every day we come across number of topics and articles that states the importance of E-Vehicles and how Governments are implementing policies to promote E-Vehicles to reduce the dependences on oil, decrease emission of greenhouse gasses and to improve air quality. Metropolitan cities are often the epicenter of air pollution, and it is important for the people living in these cities to do their part in reducing the emission of these pollutants

This paper is aimed to capture the views, sentiments and perception on the awareness and likeliness to buy E-vehicles so that sustainability in environment can be maintained. This study mainly focuses on the customer's attitude towards electronic vehicles and the expectations of people about the same soon.

Here we have conducted a statistical study to find out about the customers' preferences towards electronic vehicles or fuel vehicles. It was helpful in getting a clear idea about the customer's preferences and perceptions.

1.3. OBJECTIVES OF THE STUDY

The objectives of a study on customer knowledge on electric vehicles (EVs) could include the following:
- To assess the level of knowledge that customers have about EVs, including their features, benefits, and drawbacks, as well as their perceptions of the technology.
- To identify the factors that influence customers' decisions to purchase or not purchase an EV, such as price, range, charging infrastructure, and environmental concerns.
- To explore the potential barriers to the adoption of EVs, such as the cost of the vehicles or the availability of charging infrastructure, and to identify strategies for addressing these barriers.
- To understand the attitudes and perceptions of customers towards EVs, including their perceived benefits and drawbacks, as well as their level of interest in the technology.
- To provide insights into the potential market demand for EVs, and to identify opportunities for promoting their adoption.

1.5. SCOPE OF STUDY
The study's territorial focus is on the district of Ernakulam, Kerala. The survey was conducted within 3 months January to march. 250 individuals comprised the sample space.

1.6. RESEARCH METHODOLOGY AND STUDY

1.6.1 TOOLS FOR DATA COLLECTION
▪ *PRIMARY DATA*

Primary data is the information that is gathered for the first time, usually for study purposes, through personal experiences or other tangible proof. The primary data for this research is collected through the questionnaire method.

▪ *SECONDARY DATA*

Secondary data is the information that has previously been gathered and documented by certain researchers for a specific reason. It is available in the form of information gathered from various sources, including government publications, censuses, internal records, books, journal articles, websites, and reports. The secondary data which is used in this research is collected through the Internet, articles, journals etc.

1.6.2 SAMPLING DESIGN

▪ *SAMPLE SIZE*

The sample size in statistics means the total number of samples adopted in an experiment. The sample size for this study is 250, representing the number of respondents from Ernakulam district, Kerala

▪ *STATISTICAL TOOL*

The instruments used to apply statistical procedures are known as statistical tools. As they handle enormous data sets, statistical tools become crucial and facilitate data processing. Statistical tools like the percentage method, pie art and histograms are used for analyzing and interpreting the data in this research

1.7. LIMITATIONS OF THE STUDY
- Time allotted for the study was limited.
- The accuracy of the study depends on the information given by the respondents.
- Lack of previous research studies on the topic.
- The study was limited to a specific area of the Ernakulam District
- As the sample size is small, it might affect the generalization of the findings.

1.8 CHAPTERISATION

● CHAPTER 1

The chapter deals with introduction to the topic electric vehicle and its preference. It also deals with their significance, statement of the problem, objectives, scope, methodology, and limitations.

● CHAPTER 2

The second chapter deals with the review of literature done by other researchers on preference on EV.It also deals with theoretical framework

● CHAPTER 3

The third chapter deals with the analysis and interpretation of data collected from the individuals.

● CHAPTER 4

The fourth chapter deals with the findings and suggestions that we made from the analysis and interpretation of the data.

CHAPTER 2
THEORITICAL FRAMEWORK AND REVIEW OF LITERATURE

2.1 THEORETICAL FRAMEWORK

Electric cars (EVs) are becoming notably more popular among consumers globally. Adoption of EVs provides environmentally friendly society with innovation as one of the long-term benefits. Despite having favorable environmental effects, there aren't enough electric vehicles on the road. Consumer views of EVs are one of the main factors contributing to their lack of widespread adoption. But in addition to considering consumer intents towards EVs, this research study provides an exhaustive explanation of the current barriers to consumer adoption of EVs and a framework of the theoretical viewpoints that were built for the adoption behavior. It is possible to use the theme of this literature to gain additional insight into the attitudes and actions of customers towards the adoption of EVs. The issues relating to EV adoption and diffusion have received a lot of attention during the past few years.

Manufacturers have been obliged to offer electric vehicles all over the world because of factors including the rise in demand for low-emission transportation and government support for long-range, zero-emission vehicles through subsidies and tax breaks. As a result, the market demand for electric cars is increasing. Globally, countries have set emission targets based on their individual capacities.

The cost of EV batteries has decreased over the past 10 years because of technological advancements and the mass production of EV batteries in enormous quantities. The price of EVs has decreased as a result, even though EV batteries are one of the most expensive components of the vehicle. Because of its better longevity and outstanding capacity to store energy, with a self-discharge rate of just 5%, lithium-ion batteries are currently regarded to be the norm for modern battery electric cars, replacing the old lead acid or nickel metal hydride batteries.

2.1.1 HISTORY OF EV

Electric vehicles (EVS) have a long and fascinating history that dates all the way back to the 19th century. Electric cars were first developed in the middle of the 19th century, and many innovators are credited with their invention. Here are several crucial junctures in the evolution of electric cars.

When Hungarian priest Anyos Jedlik created the first rudimentary but functional electric motor in 1827 using a stator, rotor, and commutator, he also utilized it the following year to power a miniature automobile. The first rudimentary electric carriage, powered by non-rechargeable primary cells, was created by Robert Anderson of Scotland somewhere between 1832 and 1839. Professor Sibrandus Stratingh of the University of Groningen in the Netherlands produced a small-scale electric automobile in 1835. Thomas Davenport, an American blacksmith and inventor, created a miniature electric train in 1835 that was propelled by a crude electric motor. A Scotsman by the name of Robert Davidson created an electric locomotive in 1838 that could go at a pace of six kilometers per hour (four miles).

Electric cars did not become very popular at that time because of a lack of electricity grids and the constraints of storage batteries; nonetheless, electric trains became very popular due to their affordability and practicable speeds. Due to developments in the creation of electric locomotives, electric rail transit at the turn of the 20th century had become widespread. Their general-purpose commercial use was eventually replaced by specialized functions including platform trucks, forklift trucks, ambulances, tow tractors, and urban delivery vehicles like the famous British milk float. For most of the 20th century, the UK was the world's largest use of electric road vehicles.

2.1.2 EV IN INDIA

The popularity of electric cars (EVs) is rising as the country tries to encourage green and sustainable transportation. The state of electric vehicles in India can be summarised in the following important points:

By 2030, the government wants to sell only electric vehicles. This is an ambitious objective. The National Electric Mobility Mission Plan (NEMMP), which was introduced by the government in 2013, intends to encourage the usage of electric vehicles in India and increase their market penetration. In addition, the government has provided buyers of electric vehicles with several incentives and subsidies, including a 5% GST (Goods and Services Tax) cut and the FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) subsidy programme.

Electric two-wheelers are currently the most common type of electric vehicle in India, with several major automakers and startups offering models in this category. Electric three-wheelers are also more common in India, especially for commercial use such as taxi and delivery services.

Electric cars have been slower to gain traction in India due to factors like limited charging infrastructure and more expensive prices compared to conventional cars. But in recent years, several significant automakers have introduced electric vehicle models in India. The federal government is taking action to upgrade the infrastructure for electric vehicle charging, with plans to add charging stations beside key thoroughfares and in public areas like parking lots and stores. Due to decreased demand and supply chain interruptions, the COVID-19 pandemic has influenced the Indian market for electric vehicles, resulting in a decline in sales in 2020. The long-term picture for electric vehicles in India, according to many analysts, is still favorable.

2.1.3 LITHIUM RESERVE AND EV

Lithium reserves have just been found in India, with the potential to assist the nation's expanding electric vehicle market. For instance, the Mandya district of the southern state of Karnataka was the site of a huge lithium deposit, which the Indian government disclosed in March 2021. The deposit is thought to include 14,100 tones of lithium, which could provide all of India's needs for the metal for approximately a year. In addition to Karnataka, reports of lithium reserves have also been made for Rajasthan, Jharkhand, and Andhra Pradesh in India.

The discovery of these lithium reserves is an advantageous development for the Indian electric car industry since it helps to ensure the supply of vital raw materials for battery production and reduces the country's reliance on imports. But it's crucial to remember that these valuable resources must be developed responsibly, sustainably, and with consideration for social and environmental issues.

In general, it is anticipated that India's expanding lithium reserves, together with government incentives and policies to support electric mobility, will foster the adoption of electric vehicles in the nation and fuel the expansion of the electric vehicle sector.

2.1.4 EV MERITS AND DEMERITS

MERITS

- **Environmental benefits** EVs emit fewer greenhouse gases than conventional automobiles do, which lessens air pollution and minimises the effects of climate change.

- **Lower fuel costs:** Electricity, which is typically less expensive than petrol or diesel fuel, may be used to charge EVs. Owners of EVs may experience significant cost savings as a result, particularly in the long run.

- **Increased energy efficiency**: EVs typically use less energy than traditional cars, allowing them to go farther on a single charge.

- **Reduced noise pollution:** Since EVs make less noise than conventional vehicles, they can help to lessen noise pollution in populous regions like cities.

- **Government incentives:** To promote the use of EVs, governments in many nations provide incentives including tax credits, refunds, and subsidies.

DEMERITS

- **Higher up-front costs**: Due to the price of the battery and other components, EVs are often more expensive to purchase than conventional automobiles.

- **Range anxiety:** Drivers who worry about running out of battery charge before reaching their destination may experience anxiety due to the limited range of an EV.

- **Charging infrastructure:** In many locations, the infrastructure for charging electric vehicles (EVs) is less established than the infrastructure for charging petrol or diesel vehicles, which can make charging an EV on lengthy excursions challenging. Battery disposal: The disposal of batteries used in EVs can be environmentally damaging if not done properly.

- **Limited availability:** EV availability in some markets is lower than that of conventional vehicles, which might make it challenging for people to buy an EV if they are interested in doing so.

2.2 LITERATURE REVIEW

- Nazneen (2018) and colleagues in their study sought to understand how customers saw the advantages of EVs in terms of the environment, automotive costs, comfort, trust, technology, infrastructure, and social acceptance. Consumers are fully aware of the benefits to the environment. More infrastructure facilities are needed by the government. Governments and manufacturers must invest to shape consumer perceptions and deliver the expected characteristics.

- Karwa (2016) in his paper he proposes the idea of educating and training electric vehicle dealers. Transferring knowledge from the dealers to the customers is the barrier to acceptance for electric vehicles The dealer sales staff is the main direct contact with the customer. The dealership personnel were able to better comprehend the value proposition of electric vehicles as a result of their regular use, and they were able to engage with potential customers. The service area and the front of the dealership should both have electrical infrastructure installed. Regular EVSES training should be provided for dealership workers. Training should include multimedia resources and condensed one-page materials that illustrate the benefits, local incentives and fuel savings of EVs.

- Monica and Mifzala (2019) investigated customer perceptions in Bangalore by learning about their attitudes, feelings, and perceptions. The study determined the extent of EV knowledge and the factors affecting customer purchase decisions. Most buyers are aware of the advantages that electric vehicles have for environment. As a result, half of the customers were environmentally sensitive and may like to adopt it. They believe that installing charging stations will aid in the growth of EV sales.

- Authors Rakesh Kumar and Dr.Sanjeevkumar (2019) investigated the issues with electric automobiles in India. Customers will experience range anxiety because of the lack of on-street charging infrastructure because the vehicle may not be able to run for a long time. The most essential part of the battery pack in an electric vehicle is the battery cell. A module is made up of many battery cells, whereas a battery pack is made up of many modules. In electric vehicles, the batteries are the most expensive part. They are about half as expensive as electric cars.

- In their 2020 study, Selva and Arunmozhi sought to understand how consumers felt about electric vehicles, the global market, and how effective these factors were. Currently, 66% of the world's EV market is made up of BEVs (all-electric cars). Sales of BEVs are increasing more quickly than PHEV sales. To increase customer awareness and create new products, organisations are working on electric vehicles. This method is low-cost and has a higher effect on customers since people trust their friends and family more than corporate marketing.

- In her research, Ankita Nagpal (2020) seeks to understand how Indian consumers perceive electric vehicles. The purpose of the study is to examine the factors that affect consumers' intentions to make purchases. Higher purchase intent is influenced by reduced carbon emissions, cheap maintenance costs, and government incentives for consumers. Television advertisements, after-sales support, and the richness of knowledge and information on the internet are other factors that influence the buyer. The availability of charging stations and infrastructure, as well as increased discretionary income, are factors that influence people's choices to purchase electric vehicles.

- Rajper S. Z. and colleagues (2020) examined the literature on the possibilities for electric vehicles in developing countries. The study investigated hybrid cars, electric four-wheelers, and electric two-wheelers (E2Ws). Due to its inexpensive purchase and running costs, E2Ws are more accessible to poor nations. The E2Ws could be a practical solution in developing nations with many gasoline-powered two-wheelers on the road. Deployment of E4Ws in underdeveloped nations should be postponed until economies of scale can lower the various expenses related to E4Ws. HEVs could become more common in poor nations because they are less expensive to buy than E4Ws.

- In the study consumer perception of electric automobiles, Shweta Kishore (2021) and others tried to ascertain how consumers felt about electric cars. Most consumers, according to the report, prefer vehicles that are ecologically friendly and cost between Rs. 5 lakhs and Rs. 10 lakhs. They favour electric vehicles (EVs) since they produce less carbon dioxide, but one of their findings was that EVs require more time to charge and have fewer charging stations.

- Zulfiqar Ali Lashari (2021) and co-workers tried to investigate factors influencing consumers' intentions to use EV, such as innovative, technological, environmental, and financial benefits. The results show that consumers' own views and opinions influence their choice to buy electric cars.

- In their article "Customer Perception of Electric Vehicles," academics Parmar and Pradhan (2021) present consumer awareness and decision-making factors for buying an electric vehicle. They found that most consumers are aware of the internet as a major information source in addition to television and print. Consumers are driven by a range of factors, such as environmental awareness, low noise levels, cost, and emerging trends. Consumers should be able to purchase electric automobiles for less money.

CHAPTER 3
DATA ANALYSIS AND INTERPRETATION

DATA ANALYSIS AND INTERPRETATION:

Data analysis and interpretation involve assigning meaning to collected information to determine conclusions, significance, and implications of findings. It helps categorize, manipulate, and summarize data to answer critical questions. Data can be presented using pie charts and histograms.

** The following observations are based upon the 250 responses from the survey.

1. OCCUPATION

Occupation	Response	Percentage
Student	165	66
Employed	58	23.2
Unemployed	20	8
Retired	7	2
Total	250	100

Table1 no 3.1.1 Occupation
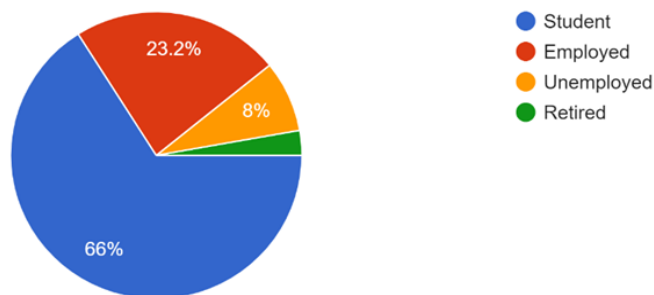
Figure no 3.1.1 Occupation

Analysis:
1. The survey shows that 66% of the respondents are students.
2. The survey shows that 23.2% of the respondents are employed people.
3. The survey shows that 8% of the respondents are unemployed people.
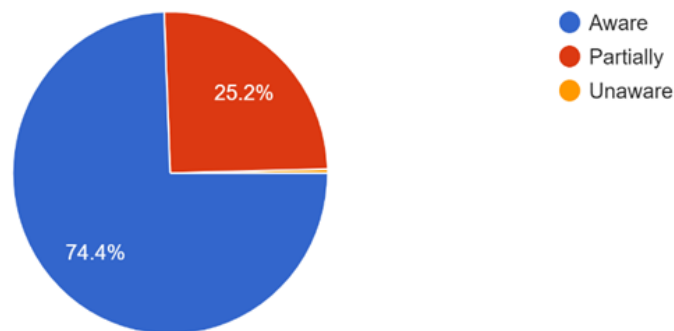4. The survey shows that about 2% of the respondents are retired people.

Interpretation:

According to the above result, it is observed from the survey that majority of the respondents are students.

2. ARE YOU AWARE ABOUT EV?

Level of awareness	Response	Percentage
Aware	174	74.4
Partially	69	25.2
Unaware	7	0.4
Total	250	100

Table no 3.2.1 Awareness

Figure no 3.2.1 Awareness

Analysis:
1. The survey shows that 74.4% of the respondents are aware about Electric Vehicle.
2. The survey shows that 25.2% of the respondents are partially aware about Electric Vehicle.
3. The survey shows that 0.4% of the respondents are unaware of the Electric Vehicle.

Interpretation:
  The survey data indicates that a majority of the respondents, 74.4%, have awareness about electric vehicles. However, a significant portion of the respondents, 25.2%, only have partial awareness about these vehicles, suggesting the need for more education and knowledge about EVs. Additionally, a very small percentage of respondents, only 0.4%, are completely unaware of electric vehicles. These findings highlight the importance of increasing awareness and understanding of electric vehicles among the population surveyed and potentially among the general population.

3. HOW DID YOU COME TO KNOW ABOUT EV?

Source	Response	Percentage
Social media	101	40.4
Friends and Relatives	78	31.2
Ads	53	21.2
Others	18	7.2
Total	250	100

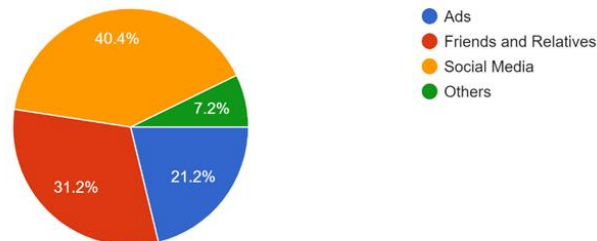**Table no 3.3.1 Source of knowledge**

Figure no 3.3.1 Source of knowledge

Analysis:

1. The survey shows that 40.4% of the respondents came to know about EV through social media.

2. The survey shows that 31.2% of the respondents came to know about EV through friends and relatives.

3. The survey shows that 21.2% of the respondents came to know about EV through advertisement.

4. The survey shows that 7.2% of the respondents came to know about EV through other sources

Interpretation:

The findings suggest that social media and word-of-mouth through friends and family are effective means of disseminating information about EVs, while advertisements may also play a role in raising awareness. This information can be useful for companies and organizations seeking to promote EVs and increase awareness among the public.

4. WHICH ATTRIBUTE OF EV ATTRACTED YOU THE MOST?

Attribute	Response	Percentage
Environmental friendly	116	46.4
Hike in petrol price	113	45.2
Tax reduction	15	6
Low maintenance cost	6	2
Total	250	100

Table no 3.4.1 Attractiveness
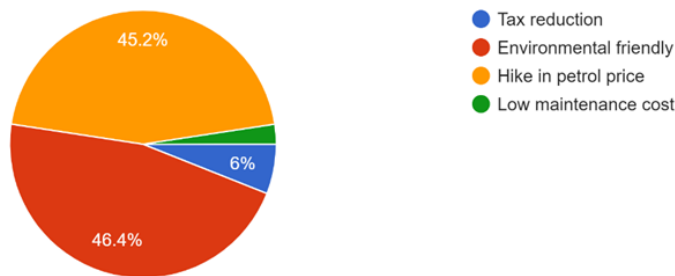
Figure no 3.4.1 Attractiveness

Analysis:

1. The survey shows that 45. 2% of the respondents are attracted to EV because of hike in petrol price.
2. The survey shows that the factor of EV being environment friendly has attracted 46.4% of the respondents towards it.
3. The survey shows that the factor tax reduction has attracted 6% of the respondents towards EV.
4. The survey shows that the factor low maintenance cost has attracted only 2% of the respondents towards EV.

Interpretation:

The findings suggest that factors related to cost savings and environmental benefits are more likely to influence people's decisions to switch to EVs than tax incentives or maintenance cost savings.

5. WHAT FACTORS DISCOURAGE YOU TO BUY ELECTRIC VEHICLE?

Attribute	Response	Percentage
High initial investment	77	31.2%
Lack of charging stations	144	58.3%
Lack of awareness	30	12.1%
Consume more time for charging	51	20.6%
Others	37	15%

Table no 3.5.1 Factors that discourage you to buy electric vehicle

What factors discourage you to buy Electric Vehicle?
247 responses
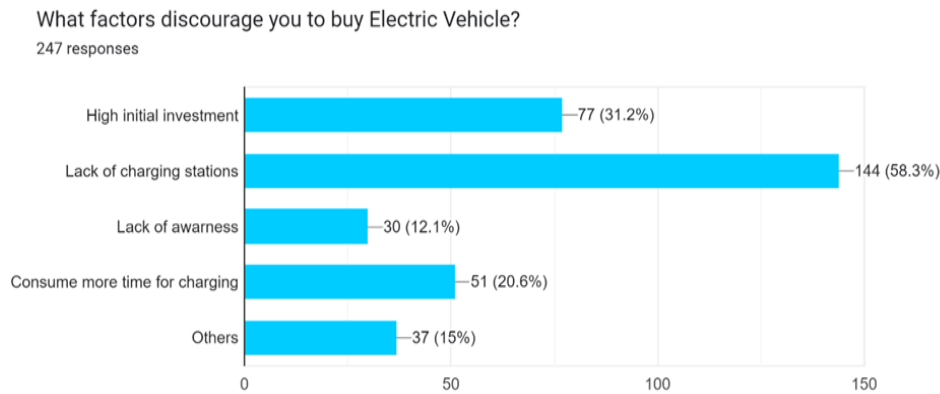
Figure no 3.5.1 Factors that discourage you to buy electric vehicle

Analysis:
1. 31.2% of respondent choose high initial investment as a barrier to adopt EV's.
2. 58.3% of respondent choose lack of charging stations as a barrier to adopt EV's.
3. 12.1% of respondent choose lack of awareness as a barrier to adopt EV's.
4. 20.6% of respondent choose to consume more time for charging as a barrier to adopt EV's.
5. 15% of respondent choose others as a barrier to adopt EV's.

Interpretation:
    The findings suggest that addressing barriers related to cost, infrastructure, education, and convenience will be crucial in promoting widespread adoption of EVs.

6. WHICH BRAND OF EV ARE YOU FAMILIAR WITH?

Brand	Responses	Percentage
Tata	118	24.3%
Ather	76	15.6%
Ola	105	21.6%
Hero	55	11.3%
Hyundai	56	11.5%
Mahindra	44	9.07%
Others	31	6.63%

Table 3.6.1 Familiarity of brand
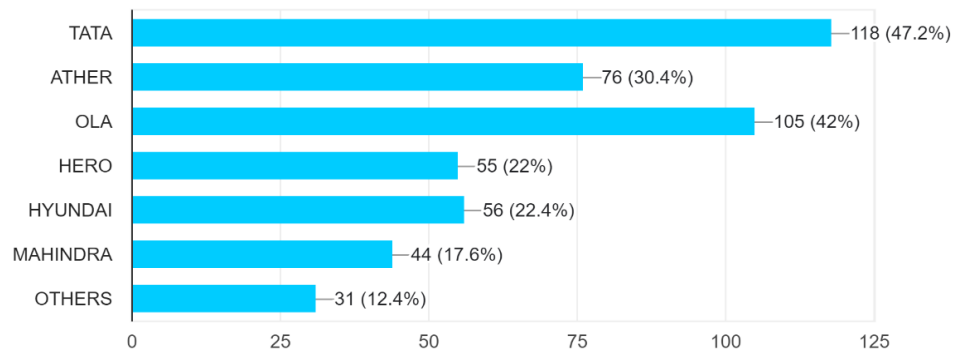
Figure   3.6.1   Familiarity of brand

Analysis:
1. 24.3% of the respondents are familiar with the brand TATA.
2. 15.6% of the respondents are familiar with the brand ATHER.
3. 21.6% of the respondents are familiar with the brand OLA.
4. 11.3% of the respondents are familiar with the brand HERO.
5. 11.5% of the respondents are familiar with the brand HYUNDAI.
6. 9.07% of the respondents are familiar with the brand MAHINDRA.
7. 6.63% of the respondents are familiar with OTHER BRANDS.

Interpretation:
These figures suggest that TATA is the most familiar brand among the respondents, followed by OLA, ATHER, HYUNDAI, HERO, MAHINDRA, and OTHER BRANDS, in descending order of familiarity. It is important to note that the study does not provide any information about the respondents' demographics, geographic location, or other factors that may influence brand familiarity, so the data should be interpreted with caution.

7. ELECTRIC VEHICLE CAN PROTECT FROM GLOBAL WARMING.

Attribute	Responses	Percentage
Not at all	22	8.8%
Unsure	46	18.4%
Somewhat an improvement	104	41.6%
Definitely	78	31.2%
Total	250	100

Table 3.7.1 protect from global warming
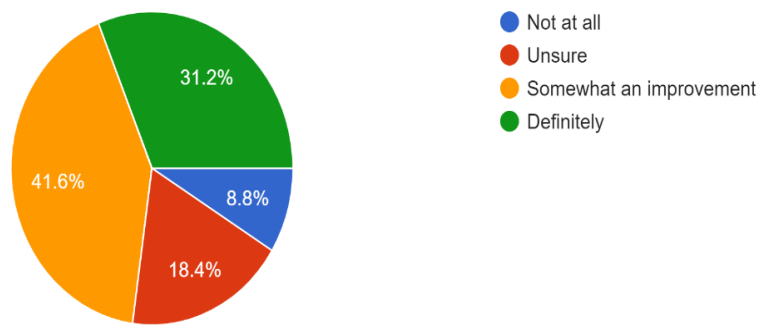
Figure   3.7.1 Protect from global warming

Analysis:
1. This study shows that 8.8% of the respondents are NOT AT ALL with this statement.
2. This study shows that 18.4% of the respondents are UNSURE with this statement.
3. This study shows that 41.6% of the respondents are SOMEWHAT AN IMPROVEMENT with this statement.
4. This study shows that 31.2% of the respondents are with this statement.

Interpretation:
   Overall, the data suggests that the respondents have a range of opinions regarding the potential of electric vehicles to protect against global warming. While a significant portion of respondents agree with the statement, others are less certain or disagree entirely. This could be due to a variety of factors, including differing levels of knowledge or awareness about the issue, varying attitudes towards electric vehicles, or differing beliefs about the causes and effects of global warming.

8. ELECTRIC CARS CAN REPLACE REGULAR CARS IN TERMS OF SATISFYING CONSUMER NEEDS.

Attribute	Responses	Percentage
Strongly Agree	32	12.8%
Agree	96	38.4%
Neutral	102	40.8%
Disagree	18	7.2%
Strongly disagree	2	0.8%
Total	250	100

Table 3.1.8   Satisfaction level
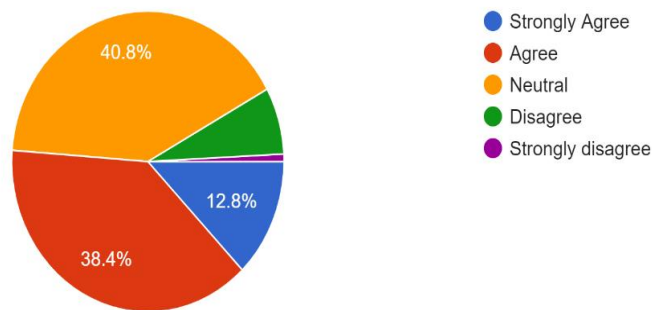
Figure 3.1.8   Satisfaction level

Analysis:
1. 12.8% of the respondents are STRONGLY AGREE with this statement.
2. 38.4% of the respondents are AGREE with this statement.
3. 40.8% of the respondents are NEUTRAL with this statement
4. 7.2% of the respondents are DISAGREE with this statement.
5. 0.8% of the respondents are STRONGLY DISAGREE with this statement.

Interpretation:
The data suggests that there is some support for the idea that electric cars can replace regular cars in terms of meeting consumer needs, with a significant portion of respondents either agreeing or strongly agreeing with the statement. However, there is also a significant portion of respondents who are neutral or unsure about the proposition, indicating a need for more information or clarity on the issue. The smaller percentage of the respondents who disagree or strongly disagree with the statement may have concerns about the demerits of EV'S.

9. ELECTRIC VEHICLES ARE EXPENSIVE.

Attribute	Responses	Percentage
Strongly Agree	28	11.2%
Agree	97	38.8%
Neutral	104	41.6%
Disagree	19	7.6%
Strongly disagree	2	0.8%
Total	250	100

Table 3.1.9 Expensiveness
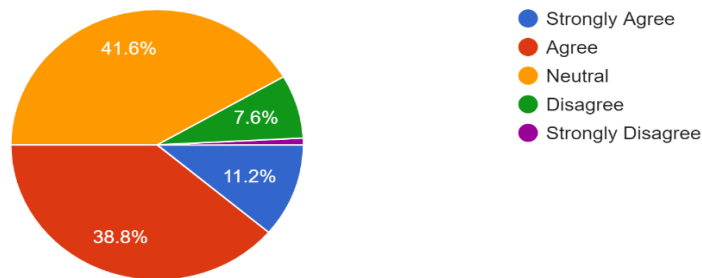
Figure   3.1.9 Expensiveness

Analysis:
1. 11.2% of the respondents STRONGLY AGREE with the statement
2. 38.8% of the respondents AGREE with the statement
3. 41.6% of the respondents are NEUTRAL towards the statement
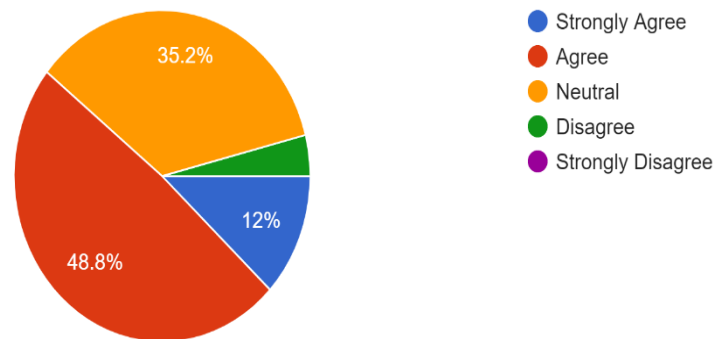4. 7.6% of the respondents DISAGREE with the statement0.8% of the respondents STRONGLY DISAGREE with the statement

Interpretation:
The data suggests that there is some belief among respondents that electric vehicles are expensive, with a significant portion either agreeing or strongly agreeing with the statement. However, a portion of respondents are neutral or unsure about the proposition, indicating a need for more information or clarity on the issue. The smaller percentage of respondents disagree or strongly disagree with the statement may have a different perspective on the cost of electric vehicles or may have more information about their affordability. The cost of EV's also vary depending upon the model as well as the governments aids and subsidy.

10. ELECTRIC VEHICLES CAN SAVE A LOT OF MONEY.

Attribute	Responses	Percentage
Strongly Agree	30	12%
Agree	122	48.8%
Neutral	88	35.2%
Disagree	10	4%
Strongly disagree	0	0
Total	250	100

Table 3.1.10 Economical Attribute

Figure 3.1.10 Economical Attribute

Analysis:
1. 12% of the respondents are STRONGLY AGREE with this statement.
2. 48.8% of the respondents are AGREE with this statement.
3. 35.2% of the respondents are NEUTRAL with this statement
4. .t 4% of the respondents are DISAGREE with this statement.
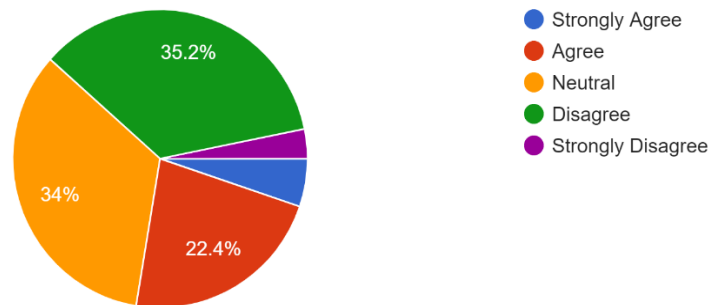5. t 0% of the respondents are STRONGLY DISAGREE with this statement.

Interpretation:

Based on the given data, it can be interpreted that most of the respondents agree that electric vehicles can save a lot of money. Specifically, 12% of the respondents strongly agree with the statement, while 48.8% agree. On the other hand, 35.2% of the respondents are neutral on this statement, and only 4% disagree. None of the respondents strongly disagree with the statement. Overall, the data suggests that there is a positive perception among the respondents that electric vehicles can save money.

11. ARE YOU ABLE TO FIND CHARGING STATIONS NEARBY YOUR LOCATION.

Attribute	Responses	Percentage
Strongly Agree	13	5.2%
Agree	56	22.4%
Neutral	85	34%
Disagree	88	35.2%
Strongly disagree	8	3.2%
Total	250	100

Table 3.1.11 Availability of charging stations

Figure 3.1.11 Availability of charging stations

Analysis:
1. 5.2% of the respondents are STRONGLY AGREEING with this statement.
2. 22.4% of the respondents are AGREEING with this statement.
3. 34% of the respondents are NEUTRAL with this statement.
4. 35.2% of the respondents are DISAGREEING with this statement
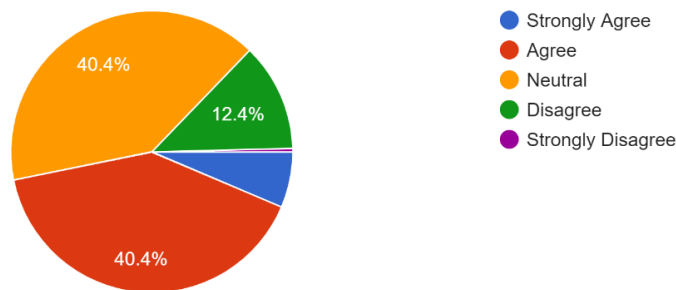5. 3.2% of the respondents are DISAGREEING with this statement

Interpretation
Based on the given data, it can be interpreted that a significant proportion of the respondents disagree with the statement that they are able to find charging stations nearby their location. Specifically, 35.2% of the respondents strongly disagree with the statement, while 22.4% agree. On the other hand, 34% of the respondents are neutral on this statement. Only a small percentage (5.2%) of the respondents strongly agree with the statement. Overall, the data suggests that there is a negative perception among the respondents that they can find charging stations nearby their location.

12. THE PROMOTION POLICIES OF THE EVS ARE GOOD ENOUGH TO CONVINCE CUSTOMERS

Attribute	Responses	Percentage
Strongly Agree	16	6.4%
Agree	101	40.4%
Neutral	101	40.4%
Disagree	31	12.4%
Strongly disagree	16	6.4%
Total	250	100

Table 3.1.12 Promotion policies

Figure   3.12.12 Promotion policies

Analysis:
1.   6.4% of the respondents are STRONGLY AGREEING with this statement.
2.   40.4% of the respondents are AGREEING with this statement.
3.   40.4% of the respondents are NEUTRAL with this statement.
4.   12.4% of the respondents are DISAGREEING with this statement.
5.   6.4% of the respondents are DISAGREEING with this statement.
6.

Interpretation:

The survey data reveals a division of opinions on the effectiveness of promotion policies for electric vehicles. While 47% of respondents agree that these policies are sufficient to persuade customers, 19% disagree. A significant proportion of respondents (40%) are neutral, suggesting a need for further research or education. However, it is important to note that the survey's findings may not reflect the wider population's views.

13. EVERYONE IS SLOWLY SHIFTING TO EV'S. WOULD YOU DARE TO TAKE A CHANGE?

Attribute	Responses	Percentage
YES	188	77.4%
NO	55	22.6%
Total	250	100

Table 3.1.13   Probability of shifting EV
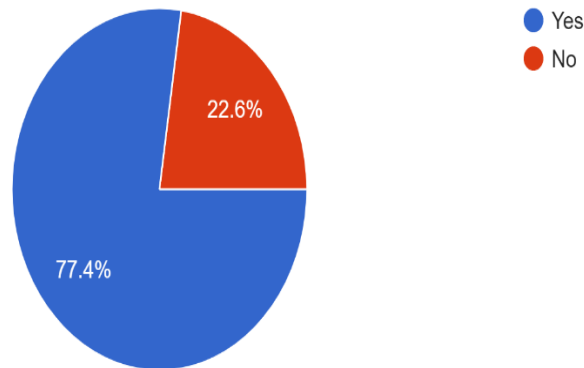
Figure   3.1.13   Probability of shifting EV

Analysis:
1. The study shows that 77.6% are willing to shift to EV
2. The study shows that 22.6% are willing to shift to EV

Interpretation of Data:
Based on the data provided, it appears that a large majority of respondents (77.6%) are willing to shift to electric vehicles, while a smaller percentage (22.6%) are still uncertain or hesitant about making the switch. This suggests a growing interest and acceptance of EVs among the general population. However, it's important to note that this study represents a specific   sample of respondents and may not necessarily reflect the attitudes and behaviours of the broader population. Additionally, willingness to shift to EVs does not necessarily equate to immediate action, as factors such as cost, and accessibility of charging infrastructure may still present barriers to adoption.

14. HOW LIKELY THAT YOUR NEXT VEHICLE WILL BE ELECTRIC?

Attribute	Responses	Percentage
I want to buy EV as soon as possible	51	20.4%
I want to buy EV During next 5 years	98	39.2%
I want to buy EV during next 10 years	70	28%
I don't want to buy EV	31	12.4%
Total	250	100

Table 3.1.14 Probability of choosing electric vehicle
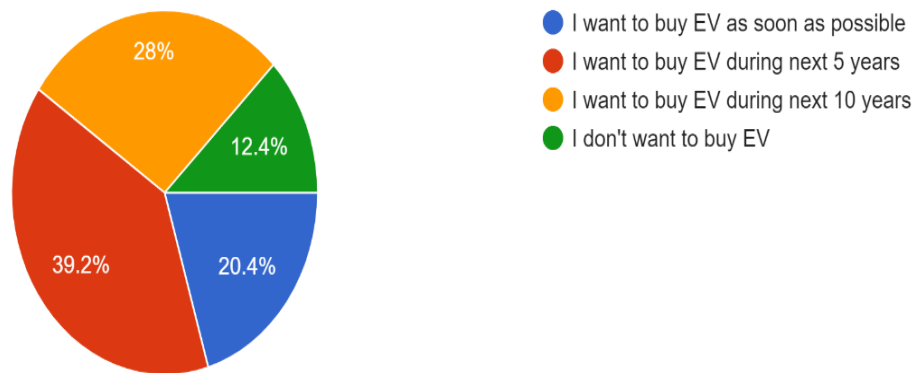
Figure 3.1.14 Probability of choosing electric vehicle

Analysis:

1. 20.4% of the respondents are willing to buy EV as soon as possible.
2. 39.2% of the respondents are willing to buy EV within the next 5 years.
3. 28% of the respondents are willing to buy EV within the next 10 years.
4. 12.4% of the respondents are not interested in buying an EV.

**Interpretation:**

The survey results indicate that a significant proportion of respondents are open to purchasing an electric vehicle soon. A combined 59.6% of respondents are willing to buy an EV within the next five years, with 20.4% willing to make a purchase as soon as possible. Only a small percentage (12.4%) have no interest in buying an EV, suggesting a growing market for these vehicles.

15. HOW LIKELY WOULD YOU RECOMMEND ELECTRIC VEHICLES TO OTHERS?

Attribute	Responses	Percentage
Most likely	61	24.6%
Likely	142	53.2%
Rarely	40	16.1%
Never	5	2%
Total	250	100

Table3.1.15 Recommendation
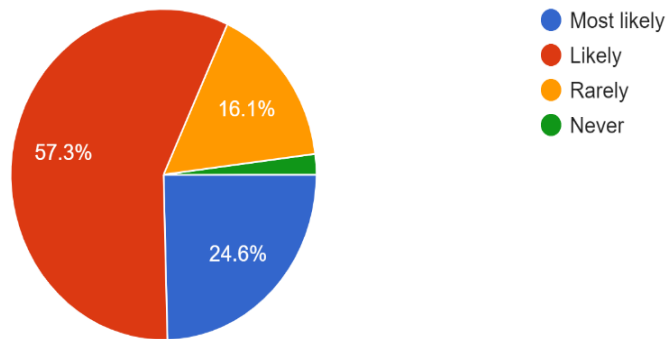
Figure 3.1.15 Recommendation

Analysis
1. This data shows that 24.6% of respondent are most likely to recommend EV's to others
2. This data shows that 57.3% of respondent are likely to recommend EV's to others
3. This data shows that 16.1% of respondent are rarely to recommend EV's to others
4. This data shows that 2% of respondent are never to recommend EV's to others

Interpretation:
These data points suggest that most respondents are either likely or highly likely to recommend EVs to others. However, a significant minority (about 16%) may have some reservations about EVs, indicating the need for more information or education on the benefits of EVs.

CHAPTER 4
FINDINGS SUGGESTIONS AND CONCLUSION

4.1 FINDINGS

This survey provides valuable insights into people's opinions and attitudes towards electric vehicles (EVs). Some key findings of the survey include:

- 66% of the respondents are students, and 23.2% are employed people.
- 74.4% of the respondents are aware of electric vehicles, and 25.2% are partially aware of them, while only 0.4% are unaware.
- 40.4% of the respondents learned about EVs through social media, 31.2% through friends and relatives, and 21.2% through advertisement.
- 45.2% of the respondents are attracted to EVs because of the hike in petrol price, while 46.4% are attracted to the fact that they are environment friendly.
- 8.8% of the respondents are not at all in agreement that EVs are expensive, while 18.4% are unsure, 41.6% somewhat agree, and 31.2% agree with the statement.

These findings shows that there is a significant awareness and interest in electric vehicles among the respondents, with many attracted to their environmental benefits and the cost savings they offer. However, there is still some uncertainty and disagreement regarding the perceived cost of EVs. Overall, the survey provides valuable insights into the public's perception of EVs, which could be used to inform policy and marketing strategies for promoting the adoption of EVs.

4.2 SUGGESTIONS

0n the basis of the study, the following suggestions were formed for increasing the customer knowledge on Electric Vehicle.

- Awareness of EV among public must be increased. This can be done by increasing the promotional activities by companies.
- Majority of the respondents are unable to find charging stations nearby their location which discourage them to buy EV. So, making available charging points at every re mote location will affect the buying behaviour of customers positively.
- There are still most people who are not interested in buying EV. This is because they are not much aware about it. So, companies must educate the consumers about EV.
- Only a small majority of people are aware about the tax reduction and subsidy provided by government to EVs. Government must take more initiative in providing these financial aids and its awareness through various platforms to consumers.
- Government had to encourage green transportation. This will help public to shift towards EV.
- The promotion of EV is very low. Aggressive advertisement and other promotional methods must be adopted by companies
- Cost of maintaining an EV is very low. But this is unknown to public. Better demonstrations must be made by companies to encourage customers.

4.3. CONCLUSION

The purpose of the study was to find out the knowledge among customers regarding Electric Vehicle. The study was conducted during the academic year 2022-2023. The sample for this study was 250 responses from the survey among public. The use of Electric Vehicle is gaining importance in the modern world. Today's scenario of increasing price of petrol and diesel, increased environmental pollution, concept of sustainable development etc has paved way for a shift towards EVs. The survey conducted shows the rising demand for EVs. Majority of the customers are aware about EV. They are interested in purchasing an EV. The factors like increased price of petrol, environmentally friendly, low maintenance cost have attracted customers towards EV whereas, some factors like high initial investment, lack of charging points and lack of awareness discourage them to buy an EV. Companies have to take more initiative in promoting EVs. Aggressive promotion policies will help to increase the scope for EV. Overall, from this study we can reach to a conclusion that EVs have a bright future in our society. The EVs will replace the traditional gasoline vehicles soon.

BIBLIOGRAPHY

ARTICLES

- Manoj K Karva. Electric vehicle dealership education and training. World electric vehicle journal 8(4), 974-982, 2016
- MS Monika (2019). A study on customer perception towards e-vehicles in Bangalore.
- Parmar and Pradhan (2021). Customer Perception of Electric Vehicles.
- Sweta Kishore (2021). Shared Electric Mobility: A Catalyst for EV Adoption in India. Contemporary Issues in Business Management and Society, 125

WEBSITES

- https://e-amrit.niti.gov.in/benefits-of-electric-vehicles
- https://intellipaat.com/blog/what-is-electric-vehicle/
- https://www.racv.com.au/royalauto/transport/electric-vehicles/the-history-and-future-of-evs.html
- https://keralakaumudi.com/en/news/mobile/news.php?id=1015621&u=the-time-is-now-after-jammu-lithium-reserves-found-in-neighb0Karnataka,from%202020%20to%20February%202021

JOURNALS

- https://cibgp.com/article_18183_28abc8ba0343300815f1fcd1291cb74e.pdf
- https://www.sciencedirect.com/science/article/abs/pii/S1361920919307242

APPENDIX

A STUDY ON CUSTOMER KNOWLEDGE ON ELECTRIC VEHICLE

QUESTIONNAIRE

1. Name:
2. Email id:
3. Occupation:
   - Student
   - Employed
   - Unemployed
   - Retired
4 .Are you aware of electric vehicles?
   - Aware
   - Partially
   - Unaware
5 .How did you come to know about electric vehicles?
   - Ads
   - Friends and relatives
   - Social media
   - Others
6 .Which attribute of EV attracted you the most?
   - Tax reduction
   - Environmental friendly
   - Hike in petrol price
   - Low maintenance cost
7 .What factors discouraged you to buy electric vehicle?
   - High initial investment
   - Lack of charging stations
   - Lack of awareness
   - Consume more time for charging
   - Others
8 .Which brand of EV are you familiar with?
   - Tata
   - Ather
   - Ola
   - Hero
   - Hyundai
   - Mahindra
   - Others
9 .Electric vehicles can protect from global warming.
   - Not at all
   - Unsure
   - Somewhat an improvement
   - Definitely

10. Electric car can replace regular cars in terms of satisfying consumer needs.
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

11. Electric vehicles are very expensive.
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

12. Electric vehicle can save a lot of money to the owner.
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

13. Are you able to find charging stations nearby your location?
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. The promotion polices of EVs are good enough to convince customers
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

15. Everyone is slowly shifting to EV's would you dare to take a change?
- Yes
- No

16. How likely that your next vehicle will be electric?
- I want to buy EV as soon as possible
- I want to buy EV during the next 5 years
- I want to buy EV during the next 10 years
- I don't want to buy EV

17. How likely would you recommend EVs to others?
- Most likely
- Likely
- Rarely
- Never