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Consumers' Preference and Perception towards Electric Vehicles

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Abstract

Currently India witnessing significant trend in Electric Vehicles (EVs). Consumers' preference and perception is changing towards electric vehicles which results sales of EVs in all categories is increasing. Especially consumers are giving maximum preference to e-two and three wheelers. Government of India allowed 100% FDI in this sector. To reduce emission Indian government supporting to electric vehicles and decided target to 30% sales of EVs up to 2030.

This current study is based on secondary data and researchers tried to study consumers' preference and perception towards EVs in India. Study of consumers' preference and perception regarding Electrical Vehicles is essential not only for academic purposes but also for policymakers, automation industries and other stakeholders to promote and support the transition to a sustainable one.

Keywords: Electric Vehicles, consumers' perception, preference, automobile.

Introduction:

Globalization is now no more a term. The term is used everywhere. Globalization of business is complementary to globalization market countries. India has a business market with all parts of the world. But at each point of time, different kinds of political regimes and their patterns of Government rules and regulations were poorly concentrated on world market trade. In India, recently there has been a significant trend of Electric Vehicles (EVs). With the growth of advancements in Science and Technology, Electric Vehicles have been popular as an alternative to fuel vehicles. The growth of prices of petrol and diesel and the environmental effects made Electrical Vehicles more accepted, especially in metro cities and big towns. Electrical Vehicles can be viewed as the need for eco-friendly and sustainable solutions for traditional gasoline-powered vehicles. Electrical Vehicles are recognized as a cost-effective approach to preserve urban transport by deducting the fuel dependency and carbon emissions which ultimately results in wellness and environmental advantages. These vehicles are adopted in India and have been greatly facilitated by the establishment of government programs and incentives. Some of the programs like FAME Faster Adoption and Manufacturing of Electrical Vehicles which aid financial incentives to Electrical Vehicles. India can achieve its sustainable development goals such as the reduction of carbon dioxide emissions and compliance with international environmental commitments by encouraging the adoption of Electrical Vehicles.

The following study aims to study the consumer perception and satisfaction of the customers using Electrical Vehicles. Consumer perception plays a vital role in the adoption of this mode of

transportation. The understanding of consumer behaviour and preferences regarding Electrical Vehicles is essential not only for academic purposes but also for policymakers, automation industries and other stakeholders to promote and support the transition to a sustainable one. Consumer perception deals with various aspects like beliefs, attitudes, opinions and behaviour towards Electrical Vehicles. It deals with the performances of Electrical Vehicles as per the consumers, the range of Electrical Vehicles, the cost, the environmental impact, the charging infrastructure and the overall desirability of the product. Now again, these are influenced by a range of factors, including personal experiences, social influences, marketing and advertising campaigns and government policies.

Electrical Vehicles are often associated with a few problems like the availability of charging stations, long charging times needed, the range of the limited and the high purchase prices. The other problems like the potential for battery degradation after some time is still unsure. These issues are tried by the automakers to improve the products. The customers preferring to the Electrical Vehicles are due to the fuel dependency and the increased rate of fuel, as environmental issues like climate change, air pollution and global warming.

Objectives of the study:

1. To study the sale of EVs in India.
2. To study consumer preference and perception towards EVs in India.

Research Methodology:

This research study is descriptive in nature and based on secondary data only. Data was collected through different sources like books, websites, research articles, research reports, etc.

Data Analysis and Interpretation:

Under this part, researchers provide data on different factors related to electric vehicles. Through this data, they tried to explain the consumers' preferences and perceptions.

Table No. 1: Sales of Automobiles and EVs in India

(Values in Lakh)

Year	Sales of Automobiles	Sales of EVs
2019	263	1.46 (0.6%)
2020	216	1.71 (0.8%)
2021	186.2	1.41 (0.8%)
2022	175.2	4.56 (2.6%)

Note- Values in brackets show the percentage sale of EVs to total automobiles
Source: 1. Report of JMK Research and Analytics
2. Report of India Brand Equity Foundation

Table no. 1 shows that, sales of automobile and electric vehicles in India from 2019. The sale of electric vehicles as compared to the sale of automobiles is very less. Up to 2021 was not even 1%.

But in the year 2022, it shows 2.6% growth. That indicates consumers are becoming aware of electric vehicles and giving preference to electric vehicles.

Table No. 2: Sales of electric vehicles in India

Year	Sales of EVs	Growth Rate
2014	2982	-
2015	2376	-20.3
2016	17973	656.4
2017	56551	214.6
2018	96756	71.1
2019	146590	51.5
2020	170812	16.5
2021	140828	-17.6
2022	455773	223.6

Source: Report of JMK Research and Analytics

Table no. 2 indicates that, sales of electric vehicles and its growth rate in India from 2014 to 2022. Numbers show overall growth in EV sales while the exception in years 2015 and 2021 sales show negative growth which means in those years sales declined by 20.3% and 17.6% respectively. Another side in year 2016 sales of EVs suddenly increased by more than 650% and in the years 2017 and 2022 sales growth rate of EVs increased by more than 200%.

Table No. 3: Category-wise sales EVs in 2022

Category	Sales
Registered E-two wheelers	32.8%
E-three wheelers (passenger + Cargo)	63.4%
E-Cars	3.3%
E-Buses	0.4%
Others	0.4%

Source: Report of JMK Research and Analytics

Table no. 3 explain category-wise sales of electric vehicles in India in the year 2022. Almost 96% market share of EVs is covered by e-two and e-three wheelers. This means in EVs consumers give more preference to two and three-wheelers. While e-cars and e-buses in India are not much demanded by the consumers because infrastructure is not sufficient for those vehicles in India in the current situation.

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Table No. 4: State-wise sales of Electric Vehicles in India

Rank	Year	
	2021	2022
1st	Uttar Pradesh	Uttar Pradesh
2nd	Bihar	Maharashtra
3rd	Karnataka	Karnataka
4th	Tamil Nadu	Tamil Nadu
5th	Delhi	Delhi

Source: Report of JMK Research and Analytics

State-wise sales of EVs in India are given in above, table no.4. This table indicates the top five states of India that give more preference to electric vehicles. For all the time (from year 2021 and 2022) Uttar Pradesh is demanding more electric vehicles while Maharashtra stood at 2nd rank in sales of EVs in the years 2022. But the year 2021 shows that Maharashtra was not even part of those top five states. In short, consumers of Uttar Pradesh, Maharashtra and Karnataka give more preference to EVs compared to other states of India.

Under table no. 5 researchers tried to show the consumers' perception and preference towards EVs brands or companies. First in the E-two wheelers category Hero Electric is highly preferred by consumers over other companies.

Table No. 5: Highly preferred EVs in different categories in 2022

E-Two Wheelers	E- Three Wheelers	E-Buses
Hero Electric (28%)	YC Electric Vehicle (9.5%)	PMI Electric Mobility (33.5%)
Okinawa Autotech (18%)	Mahindra Electric (7.5%)	Tata Moters (23.5%)
Ampere (14%)	Saera Electric (5%)	JBM Auto (21%)

Source: Report of JMK Research and Analytics

Secondly, in E-three wheelers, more than 50% of vehicles are sold by other companies which shows consumer preference for those three-wheelers but out of the remaining 50%, the maximum consumer give preference to YC Electrics for buying E-three wheelers. Lastly for buying E-buses consumers give maximum preference to PMI Electric Mobility, that is 34%.

Sale values of all EVs in 2022 top ten states of India shows that,

- Maximum consumers prefer to buy e-three wheelers in Uttar Pradesh, Delhi, Bihar and Assam.
- While maximum consumers give preference to buy e-two wheelers in Maharashtra, Karnataka, Rajasthan, Tamil Nadu, Telangana and Gujrat.
- E-car are in high demand in Telangana, Maharashtra, Karnataka and Delhi.
- E-buses are generally preferred in Maharashtra and Gujrat.

- These all indicate that, in India, consumers are demanding for electric vehicles but maximum (almost 90%) is for electric two and three-wheelers. Electric buses and cars are less demanded by consumers.

Conclusion:

In India currently, demand for EVs is comparatively low but people are becoming aware and they are giving preference to those vehicles. Electric two-wheelers and three-wheelers are most demanded by Indians in all the states. As the government of India committed to reducing carbon emissions in the Paris Agreement (2015), the government targeted 30% electric vehicles by 2030. it shows government is also supporting for electric vehicles and trying to develop infrastructure to achieve this target.

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