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RESEARCH ARTICLE

BUYER'S PERCEPTION OF E-VEHICLE IN SATARA

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ABSTRACT

The paper aims to understand the awareness of customers and government efforts to promote e-vehicle and also to understand customers' product perception. This study is conducted in Satara city with 125 samples which consist of both existing customers and potential customers. A stratified disproportionate sampling technique is adopted to select the sample. The Schedule is designed to collect the feedback from the sample. The nature of the research study is descriptive. The study identified and evaluated the consumer perception of various factors about the electric bike. The result reveals that Government is taking rigorous efforts through FAME Amendment and PLI Scheme for the Auto sector. Satara customers are well aware of e-vehicle. There is a combination of both positive and negative perceptions about e-vehicle. Most of the respondents consider the cost and the mileage in purchasing a bike, so there is ample potential for an electric bike in two-wheeler sectors. But their battery performance, speed, and appearance are the major factors that are affecting the sales of electric bikes.

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INTRODUCTION

In a thrust toward incentivizing new-age technologies and fulfilling the policy taken at COP26 to reduce its carbon emissions to zero by the year 2070, India is aggressively promoting the adoption of Electric Vehicles (EVs). India aims to switch 30 percent of private cars, 70 percent of commercial vehicles, and 80 percent of two and three-wheelers to Electronic Vehicles by the year 2030. For this, both Central and state governments are offering various incentives to buyers and manufacturers. Electric scooter sales touched double digits in the recent period. They could already reach one million sales, had it not been for the Russia-Ukraine war, which has led to a shortage of semiconductors and other materials. According to the source of published news, Last year, 0.2 million electric scooters were sold. Analysts estimate that the two key players Ather Energy and Ola Electric will jointly sell between 0.25 million to 0.26 million scooters this year. By 2023 the expectation based on the capacity built up by manufacturers is that sales could range between 1.5-2 million, making a further dent in the overall two-wheeler market. If that happens, electric scooters will cross another milestone, they will account for 10% of the total 18-20 million per annum two-wheeler market, which includes motorbikes. It could also mark a shift in the domestic market, where 70% of two-wheeler sales come from motorcycles, in favor of electric scooters in the coming years. Apart from anything else, there are only a few electric bikes and these have just entered the market. The government has its estimate. It believes that 80% of the bikes will be electric by 2030. We estimate that about 0.7-0.8 million electric scooters will be sold in 2022.

Currently, there are 35-36 players but it expects consolidation in the next two to three years. The market will grow gradually. The Price of electric scooters is also likely to go up when the government eventually withdraws the subsidy, which is currently helping to keep its price low. Perception matters a lot when anyone in the business world. Needless to say, companies that enjoy favorable customer opinions are often the ones that regularly break the ceiling and achieve remarkable success year in and year out. On the other hand, businesses with poor customer perceived value find it hard to maximize their effort, struggle to realize the true potential, and in most cases, also get consigned to obscurity. So, one should always strive to meet the expectations of customers and want to be seen in a positive light, and maintain a desired level of perception. Consumer perception is vital for any business for many reasons. Perception builds trust, Perception propels sales, Perception creates reputation, and Perception drives key metrics Perception generates word of mouth. Customers often form an opinion about a product based on many factors and not all will be in your control. If you have the right customer experience strategy, you can easily work on most things that shape or break the perception and bring the desired improvement to the result. Similarly, there are so many aspects such as price, quality; positioning, etc. that can decide how your business is seen by others in the market.

Review of Literature

(Ashok, 2019) This article highlights the importance of E-Vehicles and the efforts of the government in implementing policies to promote E-Vehicles to reduce the dependence on oil, decrease greenhouse gases and improve air quality.

The study was conducted in Bangalore city. The study analyses the awareness levels of customers on government initiatives for E-transportation in India. (Sanguesa Julio A, 2021) This paper reviews the advances of EVs regarding battery technology trends, charging methods, as well as new research challenges and open opportunities. (Hannan M A, 2014) This paper highlights existing technologies are more or less capable to perform HEV well; however, the reliability and the intelligent systems are still not up to the mark and also highlighted many factors, challenges, and problems with sustainable next-generation hybrid vehicles. (Garling Anita, 2001) Author outlines a two-phase strategy for the marketing of Electric Vehicles (EVs) based on a discussion of current and expected future characteristics of EVs and a review of research on early adopters.

RESEARCH METHODOLOGY

The research study is conducted in Satara city from Nov 2021 to Jan 2022 with the objectives of understanding the awareness of customers and government efforts to promote e-vehicle and knowing the product perception of existing and potential customers and to know the price perception and identifying the influencing factor in buying. An unequal proportionate stratified sampling technique is used to collect feedback from a total of 125 samples.

A Schedule is used to collect the opinion of respondents. Both actual buyers and potential buyers are selected as sample units. Collected data analyzed with the help of descriptive analysis and presented with tabulation and described through data analysis and discussion. The nature of the study is descriptive. Results are presented in the form of findings and classified data and tabulation presented in the annexure.

Data Analysis and Presentation: A Researcher has analyzed the collected data and discussed it as follows. Published data talks about the growth of e-vehicles in Maharashtra in cars and two-wheelers. It shows as follows. The above figures depict that E-cars and two-wheelers are increasing in Maharashtra. Of these two-wheelers, growth is higher compared to e-Cars in Maharashtra.

Table 1. E- Vehicles (cars and 2-wheelers) Growth in Maharashtra

Sr.	Year	Cars	2-wheelers	Registered
1	2019-20	183	5479	7400
2	2020-21	1128	6875	9415
3	2021-22	2633	19396	23786

Source: <https://timesofindia.indiatimes.com/city/mumbai/e-vehicles-in-maharashtra-up-153-in-1-year-more-than-double-in-mumbai/articleshow/88555385.cms>

It reveals that acceptance of e-vehicles are increasing day by day in Maharashtra. The government's efforts in implanting e- vehicles policies are getting success to some extent. It is a very good time for electric vehicles in Mumbai and Maharashtra. While the state saw a phenomenal 153% rise in new e-vehicle registrations in the first nine months of the financial year 2021-2022, the city recorded a growth of 112% in the same period, the latest transport statistics show. Compared to 9,415 e-vehicles registered in 2020-21, the number of registrations skyrocketed to 23,786 in just nine months of 2021-22 (April 1 to December 27 this year).

Government Efforts: India is aggressively promoting the adoption of Electric Vehicles (EVs). For this, both Central and state governments are offering various incentives to buyers and manufacturers.

PLI Scheme for Auto Sector: In September this year, the Union Cabinet approved a Rs 26,058 crore production-linked incentive (PLI) scheme to accelerate domestic manufacturing of electric and fuel cell vehicles and drones in India. As per the government's estimate, the scheme would attract Rs 42,500 crore in fresh investment in the automobile and auto components industry over five years. The government has allocated Rs 25,938 crore for the automobile sector and the remaining Rs 120 crore for the drone sector

FAME II Amendment: FAME-II (Faster Adoption and Manufacturing of Electric Vehicles-II) scheme. Under this, the government significantly reduced the price gap between petrol-powered two-wheelers and electricians by increasing the subsidy rate for electric two-wheelers from Rs 10,000/kWh, to Rs 15,000/kWh, while also capping the incentives at 40 percent of the cost of vehicles as against 20 percent earlier. Government official plans were afoot for 1500 new EV charging stations across the Mumbai region. The government also wants to ensure that 10% of new vehicle registrations by 2025 are electric vehicles.

Perception of Customers in Satara City: The Researcher collected the opinion of customers in Satara city to examine their perception of customers. After analysis of the collected data, it shows that 60% of respondents have bought an electric bike and 40% are potential buyers. Of these respondents, 75.2% of respondents are aware of electric bikes, and very few i.e. 24% are unaware. This percentage is due to existing customers' samples being more than potential. 43.2% of the sample perceive that the price of a vehicle is high, 26.4% perceive low, and 5.6% only perceive very low. There is mixed opinion about the price of Electric Bike. There is a need to plan an effective convincing price aspect for Electric Bike. 36.8% perceives mileage of vehicle is 'Very Good', 24.8% perceive 'Good', 28% perceive 'Bad' & 10.4% perceive 'Very Bad'. It reveals that the perception of customers towards mileage of the electric bike is satisfactory as they perceive (61.6%) 'Good' rest i.e. 39.4% perceives 'Bad'. 40.8% sample perceive the speed of the vehicle high, 11.2% perceive very high, 22.4% perceive low & 25.6% perceive very low. Thus, the perception of samples towards the speed of the electric bike is satisfactory.

Respondent (53.4%) preferred Electric Bike price range between 50,000-90,000 & rest i.e. 46.6% preferred the price range between 90000-110000. Zero Emissions and Environment & Tax Benefits are two important criteria that make respondents purchase Electric Bike. (66.66%) samples are dissatisfied with their post-purchase experience & (33.33%) customers showed satisfaction towards post-purchase experience. It reveals that 66.66% are dissatisfied with the post-purchase experience. There is a need to identify the reasons for their dissatisfaction. There is further scope to study customer satisfaction towards Electric Bike. (60%) sample perceives the high cost of maintenance and (40%) perceives low-cost maintenance of e-bikes. There is a need to identify the reasons for their high-cost maintenance. There is further scope to study customers' high-cost experience with Electric Bike. 54.66% samples said e-bike speed is 'average' & (26.66%) samples said 'good' speed & (18.66%) said 'poor'. There is a need to improve the speed of the Electric Bike. When respondents talk about mileage coverage per charge, (52%) samples said they cover 90-110 km mileage per charge & (30.67%) cover 110-130km, (12%) said 70-90km & (5.33%) very few customers said mileage covered per charge is above 130km. It reveals that the majority of sample cover distance is 90-110km per charge. A very few (5.33%) customers said the distance covered per charge is above 130km. So there is a need to study more on their power-saving storage of batteries to cover long distances per charge.

RESULTS

Results of a study found after analyzing the data where 60% samples are existing users of Electric Bike & 40% are willing to buy i.e. potential customers. There is a mixed non-proportionate group of samples used for the study. The results are based on their opinion. The majority of respondents are aware of electric bikes. There is mixed opinion on the perception of price. Perception of about mileage of the electric bike is satisfactory as they perceive (61.6%) good & rest i.e. 39.4% perceive bad. The perception of customers towards the speed of the electric bike is satisfactory. Respondents are more convinced to buy Electric Bike for low running features than other features. The preferred price of a vehicle ranges from 50000 to 90000. It shows respondents are not ready to spend more. Zero Emissions and Environment & Tax Benefits are two important criteria that make

respondents purchase Electric Bike. All sources viz. The Campaign, advertising, pamphlet, & others are used by the customer to know the Electric Bike. Respondents gave more preference to advertising the product. Actual customers are more preferred the campaign & Potential customers prefer the pamphlet. The majority of respondents are dissatisfied with the post-purchase experience. There is a need to identify the reasons for their dissatisfaction. It is well said that dissatisfied customers are always more dangerous than satisfied customers. There is further scope to study customer satisfaction towards Electric Bike. The majority perceive the maintenance cost of the vehicle as high. There is a need to identify the reasons for their high-cost maintenance. The majority perceive the speed of the vehicle to be average as per their post-experience. It reveals that customers get attracted by vehicle speed. So to attract more customers need to improve the speed of the vehicle. The majority of samples covered distance is 90-110km per charge and very few covered above 130km. Therefore, there is a need to examine power-saving storage i.e. battery to cover long distance per charge. Respondent thinks appearance plays a major role while making purchasing decisions so the Electric Bikes need to be made more attractive.

CONCLUSION

To be conclude that the maximum number of respondents are not aware of Electric bikes. Thus, it requires various promotional activities to increase the awareness level & thereby increases the sales.

Appendices

Table No. 1 Distribution of Respondents As Per Their Type of Customer

Sr. No	Type of customer	Frequency	Percentage (%)
1	Actual customer	75	60
2	Potential customer	50	40
	Total	125	100

(Source:-field data)

Table No: 2 Awareness of Electric Bike

Sr. No	Parameters	Frequency	Percentage (%)
1	Yes	94	75.2
2	No	31	24.8
	Total	125	100

(Source:-field data)

Table No: 3 Respondent Perceptions Towards Price Of Electric Bike

Sr.	Perception	Types of customer				Total	
		Actual customer		Potential customer		Freq	%
		Freq	%	Freq	%		
1.	Very High	19	25.33	12	24	31	24.8
2.	High	29	38.67	25	50	54	43.2
3.	Low	22	29.33	11	22	33	26.4
4.	Very low	05	6.67	02	4	07	5.6
	Total	75	100	50	100	125	100

(Source:-field data)

Table 4 Criteria Used to Prefer Electric Bike

Sr.	Parameters	Weighted Average	Rank
1	Insurance of registration cost	123	3
2	Petrol Consumption	123	3
3	Tax Benefits	124	2
4	Zero Emissions And Environment	125	1

(Source:-field data)

Table No 5. Perceptions towards Speed of Electric Bike

Sr.	Opinion	Types of customer				Total	
		Actual customer		Potential customer		Frequency	Percentage
		Frequency	Percentage	Frequency	Percentage		
1.	Very High	08	10.66	06	12	14	11.2
2.	High	29	38.66	22	44	51	40.8
3.	Low	9	12.02	19	38	28	22.4
4.	Verylow	29	38.66	03	6	32	25.6
5.	Total	75	100	50	100	125	100

(Source:-field data)

The study also identified and evaluated the consumer perception of various factors about the electric bike. The result of this study shows that there is a both positive and negative perception about e-vehicle. Here most of the respondents consider the cost and the mileage while purchasing a bike, majority of customers cover distance is 90-110km per charge so there is ample potential for the electric bike. But their battery performance, speed, and appearance are the major factors that are affecting the sales of electric bikes. The study explains the perceptions prevailing in the minds of customers and highlights the areas to improve the e-bike in near future.

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Table No. 6 Perception of Customer Towards Sources Used To Know Electric Bike

Sr.	Opinion	Types of customer				Total	
		Actual customer		Potential customer			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Campaign	22	29.33	07	14	29	23.2
2.	Advertising	32	42.67	22	44	54	43.2
3.	Pamphlet	10	13.33	14	28	24	19.2
4.	Other	11	14.67	7	14	18	14.4
5.	Total	75	100	50	100	125	100

(Source:-field data)

Table 7. Perception Of Customer Towards Mileage Of Electric Bike

Sr.	Opinion	Types of customer				Total	
		Actual customer		Potential customer			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Very Good	39	52	7	14	46	36.8
2.	Good	10	13.33	21	42	31	24.8
3.	Bad	16	21.34	19	38	35	28
4.	Very Bad	10	13.33	03	6	13	10.4
5.	Total	75	100	50	100	125	100

(Source:-field data)

Table No: 8 Respondent Perceptions Towards Feature To Convinced To Buy Of Electric Bike

Sr.	Opinion	Types of customer				Total	
		Actual customer		Potential customer			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	Low weight	11	14.67	09	18	20	16
2.	Low running	39	52	25	50	64	51.2
3.	Registration onnot required	19	25.33	14	28	33	26.4
4.	Others	06	8	02	4	08	6.4
5.	Total	75	100	50	100	125	100

(Source:-field data)

Table No: 9 Respondent Perception towards Price Range Preferred

Sr.	Price Range	Types of customer				Total	
		Actual customer		Potential customer			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1.	50000- 70000	04	5.33	09	18	13	10.2
2.	70000- 90000	29	38.67	25	50	54	43.2
3.	90000- 110000	34	45.33	14	28	48	38.4
4.	110000-&above	08	10.67	02	4	10	8.2
5.	Total	75	100	50	100	125	100

(Source:-field data)

Table No: 10 Respondent Perceptions Towards Over All Post Purchase Experience

Sr no.	Opinion	Frequency	Percentage (%)
1.	Strongly dissatisfied	21	28
2.	Dissatisfied	29	38.66
3.	Neutral	18	24
4.	Satisfied	07	9.33
5.	Strongly satisfied	0	0
Total		75	100

(Source:-field data)

Table No. 11 Perception Towards Over All Post Mileage Experience

Sr no.	Opinion	Frequency	Percentage (%)
1.	Good	20	26.66
2.	Average	41	54.66
3.	Poor	14	18.66
Total		75	100

(Source:-field data)

Table No. 12 Perception Towards Over All Mileage Covered Per Charge

Sr.	Opinion	Frequency	Percentage (%)
1.	70-90 Km	09	12
2.	90-110 Km	39	52
3.	110-130 Km	23	30.67
4.	130-Above	04	5.33
Total		75	100

(Source:-field data)

Table No. 13. Perception of Maintenance Cost of Electric Bike

Sr.	Opinion	Frequency	Percentage (%)
1.	Low Cost	30	40
2.	High Cost	45	60
Total		75	100

(Source:-field data)
