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Reasons for Buyer's choices towards Electronic Means of Transportation in India: An Empirical Study in the context of ESG (Environment, Social, Government) Marketing Model

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Abstract:
The electric cars are the environment-friendly means of transportation. India is a significant potential market for the use of electric vehicles. Hence the Indian government aspires to be the top fully electric producer by 2030. Nearly every automotive manufacturer in the world already produces at least one electric vehicle model, and the adoption of electric vehicles is rising quickly across the board. The Indian government has unveiled several fresh initiatives to support the producers of electric cars, which would undoubtedly result in a pollution-free environment. Despite being a complicated and lengthy road, it is certainly attainable with a thorough strategy approach. New initiatives must be implemented to increase the acceptability of electric vehicles, while steps must be taken to prevent the further uptake of gasoline-powered cars. Sample of 248 buyers were considered for the study survey to know the reasons for buyer's choices towards Electronic Means of Transportation in India and the impact of ESG (Environment, Social, Government) Marketing Model. Electronic Means of Transportation Lowers the risks to local public health connected with those emission, greenhouse gas emission and Governments offers state federal subsidies on electric vehicles are some of the reasons for buyer's choices towards Electronic Means of Transportation in India. The study concludes that there is significant impact of ESG (Environment, Social, and Government) Marketing Model on Buyer's choices towards Electronic Means of Transportation.
Keywords: Electric vehicles, Hybrid Vehicles, Consumer Choice, ESG Market Model, Electronic Means of transportation.

Introduction

Electronic Vehicles are leading the automobile industries are the future through which the manufacturers see a bright and sustainable future of the industry. The government initiatives, subsidized and the conducive environment given to the EV manufacturers in India is promising. The consumers are also being aware about the environmental benefits of the EVs. Consumer choices depend upon many things and peer group review or peer pressure is one of them. Indians are more fascinated towards new things and like to try new types of vehicles. In Indian passenger car market, new models are always good in demand.

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Today's environmental concerns promote the production and sale of electric vehicles. After 2018, the notion in India that electric cars are the best substitutes for traditional gasoline and diesel engines has altered. Nissan Motors is creating 20 new electric car models, for example, when other Indian opponents like Automobile Industry, Mahindra and Mahindra TVS Motors, and Suzuki are working hard to take advantage of the electric motor market's spectacular expansion to their advantage (Sekhar et al., 2022). Various strategic relationships have resulted from this new developing market "Tata Motors with Fiat, M&M with Ford and Renault, Bajaj Auto with Kawasaki, and TVS with Suzuki, Jaguar Land Rover by Tata Motors, SsangYong by M&M, and KTM by Bajaj Auto" (Gyulbudagyan et al., 2014).

A plug-in hybrid electric car has a good chance of lowering greenhouse gas emissions, improving fuel efficiency, and offering a driving range like a conventional car. When contrast to Battery electric cars and Hybrid Electric, the main feature that promotes the adoption of PHEVs is their readily accessible fuel for long distance driving, which lowers customer range anxiety, and an external charging outlet to replenish the battery. The two well-known PHEV models on the market are the Chevrolet Volt and the Toyota Prius Plug-in Hybrid. Compared to a CV, a PHEV may cut GHG emissions by 32% for every kilometre travelledSebastian, (2021).

The ability of smart grid technologies to improve electric transmission efficiency and lower peak demands, as well as the switch from coal to renewable sources of energy such photovoltaic solar, biomass, and wind, will all have a significant impact on emission reduction. Compared to CV, PHEV also consumes 40 to 60 percent less petroleum, saving consumers money on gasoline. Because of this, the advent of PHEV offers enormous potential for decarbonizing urban transportation and eventually transitioning to sustainable urban mobility. However, the advantages won't materialise until customers are ready to invest in the new technology (Mandy's, 2021).

Literature Review

Nagpal (2017) examined that Nearly all worldwide electric car manufacturers and contract manufacturers have decided to base their operations in India due to the nation's sizable customer base, trained and semi-skilled innovative technology, and significantly cheaper growing manufacturing costs. Consumer acceptability for e-cars depends upon the degrees of societal acceptability and consideration, and individual psychological elements like attitude and viewpoint all impact consumers' decisions to buy cars. "Although some studies regarding consumer acceptability of hybrid cars have been carried out, there has been little study that takes into account the impression of a predicted condition; in particular, the perception of fully electric vehicles has received minimal attention."

Paul et al. (2019) found that People's attitudes around navigating cities are radically shifting. Changes in consumer views, emerging integrated transportation services, shifting patterns, and technology advancements all hold the potential to produce significant economic and social advantages. A paradigmatic shift in customer mindsets towards "shared mobility" as a way of life appears to be occurring with several disruptive inventions and quickly evolving trends in urban transportation networks worldwide. In addition to fierce competition with

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carpooling and traditional car sharing, these emerging services threaten private auto ownership and public transit networks, particularly in metropolitan areas. While current ideas like public transportation may compete with and shock some other modes of transportation, it is still difficult to imagine that shifting consumer views would favour shared mobility services' continued expansion and acceptability in the years to come.

Jabbari et al.,(2017) revealed that however, while previous customer experiences with both private and public mobility mechanisms have demonstrated quantifiable challenges and benefits in managing costs, time, and neighbourhood dimensions, which would include consumers' attitudes, evolving constructs of shared mobility approaches should be thoroughly studied to comprehend the reasons behind concerns about sharing culture, safety advancements, compliance with regulations, cost efficiencies, utilisation speed of response, and a thorough analysis. Other crucial factors in this context, such as infrastructural development, transportation-related law and order, alternative mass-transit systems, environment pollution, sociocultural concerns, safety, and a wide range of other factors, may significantly impact the highly revolutionary commuter rail consumption strategy.

Bhalla, Ali, &Nazneen. (2018) found that Foreign firms are less eager to invest in EVs until demand for them grows since they need significant upfront expenditure. However, customers are also less inclined to purchase if they are unaware of reliable charging stations. According to the study, despite many government measures, the infrastructure is still the primary drawback for EV consumers. The analysis identified the demand and availability strategy for EVs. The author claims that by lowering the cost of ownership, we can both raise demand for EVs and lower their manufacturing costs. If consumers get detached owing to the limited range of EVs, advances in energy storage may be helpful.

Hidrue.et al (2011) revealed that as a new participant in the EV transportation market, state federal subsidies and consumer characteristics were two of the most significant impediments found. All consumers are eager to minimise pollution, but the associated expenses (such as those associated with purchasing, minimum operating costs, vehicle costs, payback periods, operating costs, maintenance costs, and power prices, as well as resale) are substantial. Consequently, an economical car is needed for the Indian markets. Attendees of industry events hosted by the Institute for Sustainable Movement in Chennai and Delhi pointed to high purchasing costs as the primary impediment to EV adoption. The availability of charging infrastructure, the efficiency of electric vehicles, their safety, and user apprehension all greatly influence EV adoption. As a result, the researcher believes that the penetration pricing model is better suited for the Indian car industry, which has many middle-class consumers. This means that in order to capitalise on the expansion in this industry and save a significant amount of national fuel, Indian auto officials must take action. Using these electric cars will also result in lower emissions.

Lebeau. (2012) found that India's transportation sector now relies heavily on fossil fuels like gasoline and diesel. These resources began to run out as a result of increased demand, which also increased ecological contamination. One of the newer approaches to reducing pollution and promoting green development is the use of electric vehicles (EV). Using content analysis

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of tweets and postings on social media, this article intends to summarise data on the opinion, reviews, and attitudes of customers about adopting electric in the Indian market. Batteries in electric vehicles can provide a storage option for India's efforts to promote sustainable energy. Electric mobility is more efficient than transportation using gasoline or diesel. India is very interested in EVs since they have the potential to significantly reduce the need for liquid fuel.

Ali &Naushad, (2022) revealed that in contrast to conventional vehicles (CVs), which employ a combination of gasoline and electrical engines, BEVs are fully pure as they don't have any kind of combustion engine. Due to a lack of information, HEVs and BEVs are treated as a single type of electric motor in this article. EVs are enticing to both customers and governments because of their enormous environmental and economic benefits that have been carried over by their less priced choices and reduced emissions. Even the emissions produced by HEVs are almost half that of ordinary CVs. Therefore, the extensive use of EVs can reduce transportation emissions, the risks to local public health connected with those emissions, postpone global warming, and promote the use of renewable energy sources. Governments throughout the world ought to promote this trend as a result.

Objective

1. To know the Reasons for Buyer's choices towards Electronic Means of Transportation in India.
2. To know the impact of ESG (Environment, Social, Government) Marketing Model on Buyer's choices towards Electronic Means of Transportation in India.

Methodology

Sample of 248 buyers were considered for the study survey to know the reasons for buyer's choices towards Electronic Means of Transportation in India and the impact of ESG (Environment, Social, Government) Marketing Model. The survey was conducted with the help of a structured questionnaire. The researcher had collected the primary data through convenient sampling method. Data was analysed and evaluated by mean and t-test.

Findings

Table below is sharing respondent’s general details where total 248 respondents were surveyed in which 57.3% are male and rest 42.7% are female. 25.4% respondents are below 40 years of age, 39.5% are between 40-48 years of age and rest 35.1% are above 48 years of age. 20.6% of the respondents are salaried, 29.0% are self-employed, and 27.8% are in business sector and rest 22.6% are in some other occupational sectors. 66.1% of the respondents are having less than 5 members in their family and 33.9% are with more than 5 members in their family.

Table 1 General Details

Variables	Respondents	Percentage
Gender		
Male	142	57.3

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Female	106	42.7
Total	**248**	**100**
Age (yrs)		
Below 40	63	25.4
40-48	98	39.5
Above 48	87	35.1
Total	**248**	**100**
Occupation		
Salaried	51	20.6
Self-employed	72	29.0
Business	69	27.8
Others	56	22.6
Total	**248**	**100**
No. of family members		
Less than 5	164	66.1
More than 5	84	33.9
Total	**248**	**100**

Table 2 Environment, Social, and Government Marketing Model

S. No.	Statements	Mean Value	t value	Sig.
1.	Electronic Means of Transportation lowers greenhouse gas emission	3.20	3.205	0.001
2.	These are less noisy and postpones global warming	3.13	2.096	0.019
3.	Electronic Means of Transportation helps to switch from coal to renewable sources of energy (photovoltaic solar, biomass)	3.19	3.113	0.001
4.	PHEV offers enormous potential for decarbonizing urban transportation	3.11	1.766	0.039
5.	Sociocultural concerns are reasons for buyer's choices towards Electronic Means of Transportation	3.18	2.937	0.002
6.	Electronic Means of Transportation are efficient and safe	3.12	1.925	0.028
7.	Lowers the risks to local public health connected with those emission	3.21	3.401	0.000
8.	Electronic Means of Transportation contribute to the development of a sustainable energy source	3.14	2.277	0.012
9.	Governments encourage the use of electric vehicles by lowering the cost of ownership	3.16	2.571	0.005
10.	Governments provide facilities to lower the manufacturing costs of electric vehicles	3.15	2.453	0.007
11.	Governments offers state federal subsidies on electric vehicles	3.17	2.724	0.003

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12.	Governments encourage the use of electric vehicles by increasing the availability of charging infrastructure	3.14	2.258	0.012

Table above is showing Environment, Social, and Government Marketing Model for Buyer's choices towards Electronic Means of Transportation in India. The respondent says that Electronic Means of Transportation Lowers the risks to local public health connected with those emission with mean value 3.21, lowers greenhouse gas emission3.20helps to switch from coal to renewable sources of energy (photovoltaic solar, biomass) with mean value 3.19, Sociocultural concerns are reasons for buyer's choices towards Electronic Means of Transportation with mean value 3.18 and Governments offers state federal subsidies on electric vehicles with mean value 3.17. The respondent shares that Governments encourage the use of electric vehicles by lowering the cost of ownership with mean value 3.16, provide facilities to lower the manufacturing costs of electric vehicles with mean value 3.15, Electronic Means of Transportation contribute to the development of a sustainable energy source and Governments encourage the use of electric vehicles by increasing the availability of charging infrastructure with mean value 3.14. The respondent also says that electric vehicles are less noisy and postpones global warming with mean value 3.13, Electronic Means of Transportation are efficient and safe with mean value 3.12 and PHEV offers enormous potential for decarbonizing urban transportation with mean value 3.11. Further t-test shows that all the statements are significant with the value below 0.05.

Conclusion

Electric cars are useful in combating rising fuel consumption and rising global temperatures. Environmental issues are escalating daily. Electric cars can contribute to the development of a sustainable energy source. Governments should encourage the use of electric vehicles by offering incentives and putting up charge stations around the country. Electric car sales will grow and the starting cost will be lower as a result. The cheap operating and maintenance expenses of electric cars should also be made known to the public. More electric models should be offered by businesses so that customers may select among them. The Indian economy is still in its early stages, and the popularity of electric vehicles there is expanding. Therefore, it is crucial to understand the development of electric vehicles in India. New information has improved automobile accessibility in terms of usability, attractive fuel efficiency, pollution-free operation, and smooth triangulation.

The study had explored the reasons for Buyer's choices towards Electronic Means of Transportation in India and found that the reason behind choosing electronic means of transportation is that it lowers greenhouse gas emission helps to switch from coal to renewable sources of energy (photovoltaic solar, biomass) and lowers the risks to local public health connected with those emission. Sociocultural concerns are reasons for buyer's choices towards electronic means of transportation, governments also offers state federal subsidies on electric vehicles and encourage the use of electric vehicles by lowering the cost of ownership. The study concludes that there is significant impact of ESG (Environment, Social, and

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