



"EMBRACING SUSTAINABILITY: ELECTRIC VEHICLES' PLEDGE TO A GREENER TOMORROW"

Rajat Kumar Baliarsingh, *Research Scholar, Faculty of Management Studies, Sri Sri University, Odisha. rajatbaliarsingh@gmail.com*

Abstract

In India, the use of electric cars (EVs) is regarded as a critical first step towards a sustainable future. Electric vehicles (EVs) have become a viable substitute for conventional gas-powered vehicles as the world transitions to a more sustainable future. The significance of social, environmental, and ethical factors in business operations is emphasised by sustainable marketing. Businesses that manufacture and sell EVs can demonstrate their dedication to a sustainable future and draw in customers who value making ethical decisions by utilising sustainable marketing strategies. This entails highlighting the financial and environmental advantages of electric vehicles (EVs), utilising environmentally sustainable materials in manufacturing, packaging, and collaborating with groups that support sustainable behaviours and drivers. Through an examination of the relationship between EVs and sustainable marketing, this study seeks to advance knowledge about how companies can encourage sustainable practices and responsible consumer behaviour. This conceptual paper aims to pinpoint the factors of sustainability that motivate nations to encourage the use of electric vehicles. In conclusion, this study looked at works that were released after 2015. In order to comprehend the actual threat that EVs pose to sustainability, the researcher looked through a number of publications.

Keywords: carbon footprint, sustainable marketing, electric vehicles, and sustainability

Introduction

Since people and organisations have realised how their activities affect the eco-system, the concept of sustainability has attracted a lot of attention. This has caused a change in the automotive industry towards electric vehicles (EVs), which emit fewer emissions and have a smaller carbon footprint. But creating EVs alone won't be sufficient to support a sustainable future. In order to attract environmentally sensitive customers, industries that manufacture and sell Electric Vehicles should also implement sustainable marketing strategies.

This essay explores the idea of sustainable marketing and how it applies to electric vehicles. It will examine the typical environmentally friendly marketing strategies employed by EV manufacturers to entice buyers, such as the use of environment friendly materials, emphasising the advantages of Electric Vehicles for the environment, and providing rewards for environmentally responsible behaviour. The study will also assess how well sustainable marketing strategies work to encourage the use of electric vehicles and contribute towards a more stable future. The primary goal of this paper is to advance knowledge about sustainable marketing and how it can help to foster a society that is more environmentally conscious.

Literature Review

In their investigation into the variables influencing the uptake of electric vehicles in India, **Bhattacharyya and Thakre (2020)** discovered that the most significant factor influencing market penetration was the accessibility of charging stations.

They did observe, however, that different organisations were making distinct efforts, and there was a deficiency of cooperation amongst the stakeholders of the Indian Electric Vehicle ecosystem. According to **Chaturvedi et al. (2022)**, stakeholders will be impacted by India's switch to EVs. They discovered that the change would have a big impact on the economy, generating less income and job opportunities in the petroleum industry while creating new opportunities for business and employment in the electricity sector. They recommended, among other things, that the federal and state



governments impose green or pollution taxes on the use of fossil fuels to make up for the revenue losses.

Respondents with greater income indicated a greater desire to purchase hybrid electric vehicles, according to **Christidis and Focas' 2019** study on the uptake of these vehicles in the European Union. The authors observed that the buying intentions towards electric or hybrid vehicles in Europe were significantly influenced by regional variations and local conditions. The primary factors influencing market conditions were the mobility needs and support measures of the local community. According to **CihatOnat et al. (2020)**, figuring out the best combination of alternative vehicles necessitated solutions with multiple stages and assessments of future possibilities. Socioeconomic perspectives also provided crucial information for developing the policies of the nation that promote the use of EVs. Finally, Crozier and colleagues (2021) discovered that information from an experiment and a comprehensive set of vehicle usage data that accurately represents the population could be utilized to simulate home charging in the United Kingdom. Their primary objective involved documenting variations in electrical vehicle charging behavior with the aim of estimating network capacities. They pointed out that while the methodology might be used in situations in other nations with comparable work and lifestyle cultures, independent trials would be required for domestic charging in nations with significantly different work schedules and for industrial fleet charging in nations with similar work schedules.

Research Methodology

Automobiles that are propelled by one or more electric motors as opposed to conventional internal combustion engines (ICEs) which burn fossil fuels are known as electric vehicles (EVs). Rechargeable batteries are the means by which electric energy for EV motors is stored.

Hybrid electric vehicle (HEV), Plug-in Hybrid Electric Vehicles (PHEVs), Battery electric vehicles (BEVs) and Fuel Cell Electric Vehicle (FCEV) are the four categories into which electric vehicles are divided.

HEVs, also known as series hybrid and parallel hybrid vehicles, incorporate both an engine and an electric motor. Batteries supply electricity to the motor, while fuel propels the engine. Working together, the engine and electric motor drive the gearbox, which in turn powers the wheels. FCEVs, also referred to as zero-emission vehicles, utilize fuel cell technology to generate electricity from the fuel's chemical energy, thus powering the car directly. BEVs feature larger batteries enabling extended driving distances between charges and operate solely on electricity, necessitating external power sources such as charging stations or home outlets for recharging. Conversely, PHEVs combine an electric motor with a petrol engine, offering a longer range than BEVs due to their ability to switch to petrol power when the battery is depleted after running on electricity for a predetermined period. Because they produce fewer greenhouse gases and other pollutants that worsen air pollution and contribute to climate change, electric vehicles (EVs) are thought to be more environmentally friendly than conventional vehicles which are getting power from gasoline. These may lessen reliance on fossil fuels for transportation and provide lower running costs as a result of lower fuel and maintenance expenses.

Traditional vehicles emit different amounts of carbon dioxide depending on their type, fuel efficiency, and driving frequency. Nonetheless, an automobile powered by petrol emits roughly 4.6 metric tonnes of carbon dioxide annually, whereas an automobile powered by diesel emits roughly 4.7 metric tonnes of carbon dioxide annually. Larger automobiles, like trucks and SUVs, can emit substantially higher emissions; few models can emit up to 12 MT of CO₂ annually.

It is crucial to remember that these emissions include not only CO₂ but also other dangerous gases like particulate matter, nitrogen oxides, and carbon monoxide. Traditional cars and electric vehicles have very different carbon footprints. Conventional automobiles run on internal combustion engines, which release harmful pollutants like carbon dioxide into the atmosphere when they burn fossil fuels. EVs, on the other hand, get their power from a grid that might or might not generate it using fossil fuels.



Because batteries and other components must be produced, the production process for EVs may result in increased emissions. Nonetheless, research has demonstrated that an EV's lifetime emissions including production and usage emissions are substantially lower than those of a conventional car. When compared to conventional cars, electric vehicles have a smaller carbon footprint because they produce no emissions while in use.

Furthermore, the production of electricity from renewable energy sources like solar and wind power is growing, which further increases the sustainability of electric vehicles. An increasing amount of renewable energy added to the grid will reduce EVs' carbon footprint.

All things considered, even though the initial carbon footprint of EV production may be larger, EVs are a more environmentally friendly option than traditional cars because of their lower operating emissions and shift towards renewable energy sources.

Evolution of EVs in India

The history of electric vehicles (EVs) in India dates back to a few businesses that began manufacturing low-speed EVs for both personal and business use in the early 2000s. The National Electric Mobility Mission Plan (NEMMP), which was introduced in 2013 with the goal of achieving national fuel security and promoting sustainable growth through the adoption of electric and hybrid vehicles, was the real driver behind the push for EVs in India.

Early on, the emphasis was on electric and hybrid vehicles. Mahindra introduced the e2o in 2013, and other models like the e-Verito and e-KUV100 followed. Hyundai introduced the Kona Electric in 2020, and Tata Motors debuted the Tigor and Nexon EVs in 2019.

In India, the EV ecosystem has witnessed a boom in electric two- and three-wheelers in addition to automobiles. Electric motorcycles and scooters have been introduced by companies like Hero Electric, OLA, Revolt Motors, Bajaj, Okinawa, Ampere Greaves, Ather Energy, BGauss, Okaya Electric and TVS Motors; electric three-wheelers have been introduced by Bajaj Auto and Piaggio.

The government of India has been implementing different policies and programmes to promote the use of electric vehicles. For example, there is the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme, which offers financial incentives for buying EVs. Another initiative, the National Electric Mobility Mission Plan 2020, seeks to reach the goal of fully electric public transportation by 2030.

Range anxiety, expensive prices, and a lack of adequate charging infrastructure notwithstanding, India's EV market is expanding gradually thanks to rising public awareness and official backing. By 2027, it is anticipated that the Indian EV market would have 6.34 million units sold.

Different EV Brands in India

I. Tata Motors: The first electric compact SUV in India, the Nexon EV was introduced by Tata Motors.

II. Mahindra Electric: An affiliate of Mahindra & Mahindra, Mahindra Electric manufactures the e-Verito sedan and the e2o electric vehicle.

III. MG Motors: In the Indian market, sells the comet EV, ZS EV, an all-electric SUV.

IV. Hyundai: The first fully electric SUV available in India is the Kona Electric, made by Hyundai.

V. Ather Energy: The Ather 450X and 450 Plus electric scooters are made by the Indian electric vehicle manufacturer Ather Energy. In June 2023, the most affordable scooter 450S was launched.

VI. Bajaj Auto: After a ten-year hiatus, Bajaj relaunched the Chetak electric scooter in 2020.

VII. Hero Electric: With a variety of electric motorcycles and scooters, Hero Electric is one of India's biggest producers of electric two-wheelers.

VIII. OLA Electric: Ola Electric released three versions of the S1 Air in February. The company that makes electric vehicles released the S1 Pro Gen 2 and the S1 X line of scooters on Independence Day.

IX. TVS: The TVS X electric scooter came out in August. It has a lot of cool features and hardware that have never been seen before.

The Significance of Sustainable Marketing in the Context of Electric Vehicles



The growing concern about environmental sustainability has led to a rise in interest in sustainable marketing. The idea focuses on using socially and environmentally conscious methods to generate value for stakeholders, customers, and the environment. Businesses that use sustainable marketing techniques can gain a competitive edge because they cater to customers who are becoming more conscious of how their purchases affect the environment. When it comes to EVs, sustainable marketing can play a significant role in encouraging consumers who care about lessening their carbon footprint to adopt EVs.

Since EVs have the potential to minimise the emission of carbon and enhance the quality of air, sustainable marketing is important in the context of EVs. Electric vehicles (EVs) are considered as a solutions to the problems of environment and society caused by conventional gasoline-powered vehicles, and they are a crucial component of the shift towards sustainable transportation. Manufacturers of electric vehicles (EVs) can leverage environmentally friendly marketing strategies like ecolabelling, green advertising, and cause-related marketing to highlight the advantages of EVs for the environment and draw in more customers. Additionally, businesses can create environmentally friendly marketing plans that highlight the social advantages of electric vehicles (EVs), such as improved energy security and a decrease in reliance on foreign oil.

In conclusion, the idea of sustainable marketing is pertinent and significant when discussing EVs. Businesses that use environmentally and socially responsible marketing strategies can promote the use of electric vehicles (EVs) by raising awareness of their advantages. Carbon emissions can be reduced by the use of EVs, which can benefit society and the environment. To encourage the adoption of EVs and aid in the shift to sustainable transportation, EV manufacturers must incorporate sustainable marketing practices into their marketing strategies.

Companies that manufacture and sell electric vehicles (EVs) can attract eco-aware customers by utilising a variety of sustainable marketing strategies. Among these strategies are:

1. **Stressing the Environmental Advantages of EVs:** Businesses can inform customers of the advantages of EVs for the environment, such as lower noise pollution, better air quality, and fewer greenhouse gas emissions. Marketing campaigns, social media posts, and other advertising mediums can accomplish this.

2. **Encouraging Sustainable Manufacturing Practices:** EV manufacturers can show their dedication to sustainability by utilising environmentally friendly materials, cutting waste, and lowering their carbon footprint in the production process. Additionally, they can emphasise how their production facilities use renewable energy sources like solar or wind power.

3. **Supplying Charging Infrastructure:** Having access to charging infrastructure is one of the main worries for EV owners.

Businesses can solve this issue by collaborating with governmental bodies and other groups to place charging stations on main thoroughfares and in public areas. To make it easier for customers to charge their EVs, they can also provide home charging options.

4. **Offering Incentives:** Businesses can use tax credits, rebates, and discounts on EV purchases to entice more people to convert to EVs. A greater range of consumers may be able to afford and utilise EVs thanks to these incentives.

5. **Working with Sustainability Organisations:** Businesses can support sustainability initiatives and advance environmental causes by collaborating with sustainability organisations. This can help establish the company's reputation and show its dedication to sustainability.

Here are some marketing tactics that a few well-known EV brands in India have used:

1. **Tata Motors:** To promote its EV brand, Nexon EV, Tata Motors has launched a number of marketing campaigns. They have established charging stations all over the nation in partnership with different businesses.

Additionally, they have started test-drive campaigns in a number of Indian cities to raise awareness of their EV offerings.



They have also started social media competitions and digital campaigns to interact with their audience and raise brand awareness.

2. Mahindra Electric: Using a variety of marketing avenues, Mahindra Electric has been aggressively pushing its EV brand, e2oPlus. They have started public awareness campaigns about the advantages of electric vehicles and have installed infrastructure for charging them in a number of cities. They have partnered with taxi aggregators to launch their electric vehicles into the fleet market. To draw clients, Mahindra Electric has also unveiled exclusive offers and discounts.

3. MG Motors: In India, MG Motors has been actively pushing its EV brand, ZS EV. They have started campaigns to inform people about the advantages of EVs and placed charging stations in a number of cities. Additionally, MG Motors has partnered with a number of businesses to provide consumers with alluring financing options. Additionally, they have implemented alluring exchange programmes to entice clients to convert to electric vehicles.

4. Hyundai: In India, Hyundai has introduced Kona Electric, its EV brand. They have started campaigns to inform people about the advantages of EVs and installed charging infrastructure in a number of cities. Hyundai has also partnered with a number of businesses to provide consumers with alluring financing choices.

To draw clients, they have also implemented unique promotions and discounts.

The Efficiency of Sustainable Marketing Strategies in Encouraging the Uptake of Electric Vehicles and Advancing a More Sustainable Future

Because they have less of an impact on the environment than conventional gasoline-powered cars, electric vehicles (EVs) are growing in popularity as a substitute. However, businesses that manufacture and sell EVs must use sustainable marketing strategies in order to further encourage the adoption of these vehicles. This entails emphasising the advantages that electric vehicles (EVs) offer for the environment, such as lowering carbon emissions and enhancing air quality, as well as utilising sustainable materials in production. Incentives like tax credits or rebates can also persuade buyers to select electric vehicles over conventional automobiles.

Encouraging the adoption of electric vehicles (EVs) requires the application of sustainable marketing strategies, but it's also critical to take the ecosystem's overall sustainability into account. This covers material sourcing, manufacturing procedures, and recycling at the end of product life. By utilising technologies that make batteries work better to increase the durability of EV batteries and can make EVs even more environmentally friendly by charging them with clean energy sources like solar or wind power.

Companies that adopt a holistic approach to sustainability can encourage the use of electric vehicles (EVs) while also helping to create a more sustainable future for all.

Can Electric Vehicles Be Considered Sustainable?

The argument for electric vehicles (EVs) is that they are a more environmentally friendly option than conventional gasoline-powered automobiles. Nevertheless, a Forbes India article raises doubts about the sustainability of EVs. The author makes the case that even though EVs emit less emissions when driving than gasoline-powered cars, the production and disposal of batteries have a big negative influence on the environment. Mining for the metals that are rare in earth and other minerals is necessary for the production of EV batteries, and this process can result in deforestation, water pollution, and habitat destruction. Furthermore, the manufacture and disposal of batteries may result in the release of greenhouse gases and hazardous waste.

The article offers various solutions to the sustainability issues with EVs. These include lowering the amount of rare earth metals used in battery production, putting in place more effective and eco-friendly production techniques, and enhancing the recycling and disposal of battery. The essay also stresses how crucial it is to evaluate EVs' sustainability over their whole lifecycle, from production to disposal. EVs can be made more sustainable and have the potential to play a bigger role in a more sustainable future by putting more sustainable practices into place at every stage of their lifecycle.



Conclusion

In conclusion, eco-friendly marketing strategies are essential for encouraging the use of electric cars and advancing a more sustainable future. To appeal to environmentally conscious consumers, EV companies can employ a variety of strategies, including highlighting the advantages of EVs for the environment, utilising Environmentally sustainable materials in their manufacturing, and putting green marketing techniques into practice. It's crucial to remember that EVs are not a appropriate reply to sustainability, and also there are issues to be resolved, like battery production and disposal.

Furthermore, businesses should focus sustainable practices across their whole supply chain, not just in their marketing campaigns, as demand for EVs rises. This entails making certain that materials are sourced ethically, cutting the emissions of carbon during manufacturing and transportation or distribution, and putting in place responsible battery end-of-life measures. By doing this, EV businesses can build long-term value for their company and the environment while also helping to create a more sustainable future.

Reference

1. Thakre, S., and S. Bhattacharyya (2021). An empirical investigation into the factors influencing the adoption of electric vehicles in the context of India's emerging economy. 23(3) *Foresight*, 311–326. The doi:10.1188/fs-04-2020-0037
2. Yaqoot, M., Chaturvedi, B., Nautiyal, A., and Kandpal, T. C. (2022). The anticipated shift to electric vehicles in India and the implications for various stakeholders. 189–200 in *Energy for Sustainable Development*, 66. The doi: 10.1016/j.esd.2021.12.006
3. In 2019, Christidis, P., and Focas, C. The European Union's Hybrid and Electric Vehicle Uptake is influenced by certain factors. 12(18), 3414 in *Energies*. The DOI is 10.3390/en12183414.
4. Yuen, C., McCulloch, M. T., & Crozier, C. (2021). Identifying variations in the charging habits of electric vehicles to estimate network capacity. *Transport and Environment, Part D: Transportation Research*, 93, 102762. The doi: 10.1016/j.trd.2021.102762
5. The development of the electric vehicle ecosystem in India. April 21, 2022.
6. G. (2022a, November 27). <https://newsonair.com/2022/04/21/evolution-of-ev-ecosystem-in-india>. Changing Gears: India's Changing Electric Vehicle Scene. *Express Financial*. The evolving electric vehicle landscape in India: <https://www.financialexpress.com/express-mobility/shifting-gearings-the-evolving-ev-landscape-in-india/2893551/> #:~:text=The%20genesis%20of%20EVs%20in,bikes%20between%202000 and 202007.
7. Kulkarni, A. (January 4, 2023). India's EV evolution will be driven by innovation and adoption. | *Mint, mint, mint*. The article "Innovation and adoption will lead India's evolution" (11672857267900) can be found at <https://www.livemint.com/opinion/columns>.
8. Kumar, S. (April 14, 2022). Can electric vehicles be considered genuinely sustainable in India? *The Times of India Blog*. Is it possible for EVs to be genuinely sustainable in India?— <https://timesofindia.indiatimes.com/blogs/voices/>
9. M. (May 24, 2019). Are automobiles that run on electricity really sustainable? *Forbes in India*. Are electric vehicles really sustainable? <https://www.forbesindia.com/blog/technology/>
10. Tarlochan, F., Kucukvar, M., Aboushaqrah, N. N. M., Onat, N. C., & Hamouda, A. M. (2020). The case for electric vehicles: From sustainability assessment to sustainability management for policy development. *Energy Management and Conversion*, 216, 112937. 10.1016/j.enconman.2020.112937 can be found here.
11. S. (November 22, 2022b). The Role of Electric Vehicles in Promoting Sustainable Development. *International Saur Energy*. How EVs are advancing sustainable development: <https://www.saurenergy.com/solar-energy-news/>



12. Spotlight, E. (March 9, 2023). Engineering sustainable transport in the future: prospects for India's electric vehicle sector. The Times of Economics. The following link points to an article about the opportunities in India's energy sector: <https://economicstimes.indiatimes.com/industry/renewables/engineering-the-future-of-sustainable-transportation/articleshow/98308467.cms>
13. ELECTRICAL VEHICLE TYPES. (As of now). [ov.in/types-of-electric-vehicles/e-amrit.niti.gov.in/](https://www.ov.in/types-of-electric-vehicles/e-amrit.niti.gov.in/)
14. Electric vehicle types: BEVs, PHEVs, and HEVs What distinguishes the two? (As of now). EVgo. Drivers/types-of-evs/ <https://www.evgo.com/ev-drivers/t-types-of-evs/>
15. What kinds of electric vehicles are there? (As of now). Where to buy different types of electric vehicles? <https://www.mynrma.com.au/cars-and-driving/electricvehicles>