

Understanding Electric Vehicle Adoption in the Indian Market

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Abstract: *The adoption of electric vehicles (EVs) represents a pivotal strategy for addressing environmental, economic, and technological challenges in the transportation sector, particularly in rapidly urbanizing countries like India. This paper aims to comprehensively analyze the factors influencing EV adoption in the Indian market, including consumer attitudes, policy impacts, infrastructure development, and technological innovations.*

Drawing on a mixed-methods research approach, this study combines survey data analysis, policy evaluation, and infrastructure assessment to provide insights into the complexities of EV adoption dynamics in India. The findings reveal a positive perception of EVs as environmentally friendly vehicles, yet significant barriers to adoption persist, including high upfront costs, limited charging infrastructure, and concerns about battery range.

Policy interventions, such as government incentives and subsidies, have stimulated initial interest in EVs but have struggled to drive sustained uptake. Regional disparities in policy implementation and infrastructure deployment highlight the need for tailored interventions that account for local contexts and challenges. Successful examples of public-private partnerships offer promising avenues for accelerating infrastructure development and enhancing charging network accessibility.

Advancements in battery technology and improvements in vehicle performance emerge as key enablers for increasing the competitiveness of EVs in the Indian market. Continued innovation in these areas holds immense potential for driving consumer acceptance and market growth.

In conclusion, this research underscores the importance of adopting holistic policy approaches, addressing regional disparities, and fostering technological innovation to accelerate electric vehicle adoption in India. By leveraging these strategies, India can position itself as a leader in sustainable transportation and contribute to global efforts to mitigate climate change and improve air quality.

Keywords: Electric vehicles, EV adoption, India, Sustainable transportation, Policy impacts, Infrastructure development, Consumer behaviour, Technological innovation, Government incentives, Charging infrastructure, Battery technology, Consumer preferences, Environmental sustainability, Economic impacts, Urban-rural disparities