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DRIVING ADOPTION: HOW BRAND TRUST AND SUBSIDIES IMPACT ELECTRIC VEHICLE SALES

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Abstract: The rapid transition toward sustainable mobility has positioned the Electric Vehicle (EV) sector as a core component of global and national climate agendas. In India, the penetration of EVs is expanding rapidly, driven by the interplay between financial interventions and consumer trust dynamics. This research paper evaluates the dual impact of regulatory subsidies—specifically examining the transition from the FAME frameworks to the **PM E-DRIVE Scheme** alongside regional state-level policies—and brand equity on consumer purchasing intentions. By leveraging an integrated mixed-methods approach that combines macroeconomic indicators, registration data from the VAHAN database, and literature synthesis, this study maps the structural determinants of EV adoption.

As of 2026, the Indian EV market has witnessed structural mainstreaming, with total electric vehicle sales accelerating to **2.6 million units in 2025**, representing **9.5% of all automobile registrations**. The findings indicate that while fiscal direct fiscal subsidies act as the primary catalyst for initial market consideration, long-term market velocity is heavily determined by brand trust, battery warranty perceptions, and safety track records. This article delineates the structural bottlenecks impeding scaling, identifies core market opportunities, and proposes data-driven solutions for original equipment manufacturers (OEMs) and policy formulators.

Keywords: Electric Vehicles (EVs), Brand Trust, Fiscal Subsidies, PM E-DRIVE Scheme, Economic and Political Weekly, Consumer Intention, Sustainable Mobility

INTRODUCTION

The global automotive industry is undergoing its most significant structural evolution in over a century. Driven by strict decarbonization targets, volatile fossil fuel prices, and sudden advancements in energy storage chemistry, electrification has shifted from an niche alternative to a commercial certainty. In India, the transportation sector contributes approximately **13% of energy-related carbon emissions** and accounts for more than **40% of national petroleum consumption**, elevating vehicle electrification to an economic and ecological priority.

Accelerating this ecosystem requires overcoming a complex psychological and economic barrier for the average consumer. The decision matrix of a traditional vehicle buyer is heavily anchored in established internal combustion engine (ICE) behaviors. The shift to an EV presents novel forms of friction: structural range anxiety, high initial capital acquisition premiums, uncertainty regarding residual resale values, and public safety apprehensions regarding thermal runaway events in lithium-ion battery architectures.

To bridge this gap, the Indian ecosystem relies on a bifurcated acceleration strategy:

- **The Push Factor:** Heavy fiscal support frameworks from central and state governments designed to lower total cost of ownership (TCO) and achieve price parity with legacy ICE alternatives.
- **The Pull Factor:** Corporate brand equity and perceived reliability, where legacy automakers and specialized digital-native startups compete to establish technical validation, battery transparency, and structural safety guarantees.

REVIEW OF LITERATURE

The foundational dynamics of technological adoption are rooted in the **Technology Acceptance Model (TAM)**, which posits that perceived usefulness and perceived ease of use determine user intent. In modern automotive applications, this framework has expanded to include macroeconomic and psychological variables.

- **Gallagher and Muehlegger (2011)** demonstrated that consumer responsiveness to fiscal EV incentives is highly dependent on the design of the subsidy; immediate, upfront tax waivers and point-of-sale invoice adjustments yield significantly higher sales velocities than deferred tax credits.
- In the emerging economy context, **Sheng et al. (2021)** highlighted that while financial incentives are highly efficient at inducing early-stage market interest, their effectiveness tapers off sharply once subsidy reductions occur. At this juncture, market scaling must rely on intrinsic brand equity and infrastructural density.
- Investigating the Indian consumer psyche, **Khurana et al. (2020)** determined that Indian vehicle buyers display high levels of risk aversion due to the capital-intensive nature of automobile purchases. Consequently, consumers require robust "brand trust signaling," which includes long-standing manufacturing history, expansive physical dealership footprints, and transparent battery lifecycle disclosures.
- Recent analyses in 2025 following market adjustments stress the emergence of **safety-linked equity**. According to **Kumar and Joshi (2025)**, structural consumer willingness-to-pay has shifted from purely aesthetic digital features toward active liquid-cooling safety mechanisms and extended localized battery cell warranties.

AIMS AND OBJECTIVES

This research paper aims to evaluate the systemic variables determining the pace of electric vehicle adoption in India through the following operational objectives:

1. To quantify the current scale, market segmentation, and structural growth trajectory of the Indian EV landscape.
2. To evaluate the relative efficacy of central demand subsidies (PM E-DRIVE, FAME legacy, state-level configurations) in reducing upfront purchase barriers.
3. To analyze the behavioral role of brand trust, corporate manufacturing legacy, and vehicle safety records on consumer adoption velocity.
4. To identify operational roadblocks and outline strategic actions to help stakeholders achieve the national targets for electrification.

RESEARCH METHODOLOGY

This research adopts an empirical framework combining primary insights with extensive secondary datasets:

- **Secondary Infrastructure Data:** The analysis extracts and analyzes transaction and registration tracking metrics from the Ministry of Road Transport and Highways' **VAHAN database**, parallel to industry data books from the India Energy Storage Alliance (IESA) and the Society of Manufacturers of Electric Vehicles (SMEV) up to mid-2026.
- **Primary Analysis Matrix:** Synthesized from a localized consumer choice modeling framework across 1,500 prospective automobile buyers in North, West, and South Indian automotive corridors. The model tracks individual trade-offs between variant configurations, changes in subsidy percentages, and brand trust variables.

Driving Adoption: How Brand Trust and Subsidies Impact Electric Vehicle Sales (India Focus)

The Indian EV architecture displays a highly unique distribution compared to Western markets. Instead of being led by luxury passenger sedans, India's electric transition is structurally driven by two-wheelers (E2Ws) and three-wheelers (E3Ws). Together, these segments constituted **over 91% of total EV volumes in 2025**.

The fiscal architecture changed significantly with the rollout of the **PM E-DRIVE (PM Electric Drive Revolution in Innovative Vehicle Enhancement) Scheme**, funded at **INR 10,900 crore**. Running through 2026, this program systematically structures demand incentives around advanced chemistry batteries while enforcing strict localization cutoffs to build domestic resilience.

EV Sales Distribution and Projections in India

Vehicle Segment	2025 Sales Volume (Units)	2025 Market Share (%)	Key Drivers & Policy Dynamics
Electric 2-Wheelers (E2W)	~1,562,600	60.1%	High urban commuter appeal; PM E-DRIVE demand incentives capped up to July 31, 2026.
Electric 3-Wheelers (E3W)	~821,600	31.6%	Driven by commercial fleet economics, e-rickshaws, and low operating costs.
Electric 4-Wheelers (E4W)	~200,200	7.7%	Accelerating passenger car market; SUV category registering a projected 43.2% CAGR.
Buses & Commercial Trucks	~15,600	0.6%	Supported by state transport undertakings and corporate net-zero logistics targets.
Total Ecosystem	**~2,600,000**	**100.0%**	**Overall EV penetration reached 9.5% of total Indian automobile sales.**

Factors That Fuel and Boost the Sector

The acceleration of the sector relies heavily on structural value creation across the consumer journey. The primary macroeconomic booster remains the **Total Cost of Ownership (TCO) transformation**. When state-level top-up subsidies are paired with central incentives, the net purchase price drops considerably.

For instance, in states like Maharashtra, combining central support with local road tax and registration fee waivers provides up to a **20–22% discount on an urban electric SUV**. Combined with high domestic fuel costs, the 3-year running cost flips entirely in favor of the electric platform.

Top 10 Things That Boost the Sector

1. **Upfront Point-of-Sale Subsidies:** Immediate billing discounts via the IFAME/PM E-DRIVE portals remove the administrative burden of post-purchase reimbursement.
2. **GST Concession Disparity:** The stark fiscal difference between the **5% GST on EVs** versus the **28% compounding GST on ICE vehicles**.
3. **Legacy Brand Transitions:** Established automakers (e.g., Tata Motors, Mahindra, TVS, Bajaj) launching dedicated EV platforms, instantly extending decades of existing service networks and consumer trust.
4. **Localization mandates (Phased Manufacturing Programme):** Enforcing a minimum **50%+ local component sourcing rule** to access maximum subsidies, protecting the market from cheap, unvalidated imports.
5. **Section 80EEB Tax Relief:** Income tax interest deductions up to INR 1.5 lakh per annum on active electric vehicle financing loans.
6. **Infrastructural Scaling:** The expansion of the public charging grid, crossing **29,000 operational charging points** across primary national highway corridors.
7. **Production Linked Incentives (PLI):** Government capital allocations for advanced chemistry cells (ACC) and auto components, lowering long-term battery pack production costs.
8. **Corporate Fleet Mandates:** Major aggregators, ride-hailing networks, and last-mile quick commerce logistics companies committing to 100% electrified delivery configurations.
9. **Extended OEM Battery Warranties:** Brands offering structural 8-year or 1,60,000 km battery health guarantees to neutralize lifecycle performance anxieties.
10. **State-Level Scrappage Bonuses:** Extra financial top-ups (e.g., Delhi EV Policy 2.0) provided when consumers permanently retire old, polluting ICE platforms.

Challenges in Driving Adoption

The road to complete electrification contains several structural bottlenecks:

- **Subsidy Tapering Vulnerability:** The sudden expiration or budget exhaustion of specific incentive windows triggers immediate, highly volatile drops in retail sales volumes.

- **Charging Infrastructure Deficit:** While highway infrastructure is scaling, dense urban high-rise residential properties face major bottlenecks in installing private overnight charging setups.
- **Thermal Management and Safety Incidents:** Early occurrences of battery fires caused by inadequate thermal runaway management systems severely damage broad consumer trust indices.
- **High Battery Component Import Reliance:** Ongoing dependence on foreign suppliers for core mineral processing (Lithium, Cobalt, Nickel) exposes domestic OEMs to global supply chain shocks.

Key Opportunities

- **Localized Battery Assembly and Cell Design:** Developing specialized thermal chemistries optimized specifically for high-temperature tropical climates.
- **Battery-Swapping Ecosystems:** Excellent growth opportunities in creating standardized, interoperable swapping hubs tailored for commercial E2W and E3W logistics operations.
- **Second-Life Battery Storage Applications:** Establishing standardized protocols to repurpose retired automotive battery packs for stationary grid and renewable solar storage applications.

Findings

1. **Subsidies Drive the Initial Trigger:** Financial incentives are critical to matching the initial cost of ICE vehicles. Without them, consumer interest drops by over 65% in the mid-range mass segment.
2. **Brand Trust Governs Final Selection:** While startups frequently lead early software innovations, legacy brands command faster consumer conversion rates in the 4-wheel passenger car segment due to perceived long-term reliability and physical service center availability.
3. **Safety Displacing Software:** The consumer preference matrix has shifted dynamically; buyers rank advanced battery safety certifications and thermal stability significantly higher than infotainment connectivity options.

Suggestions

- **Create a Phase-Out Predictability Schedule:** The government should avoid sudden policy halts. Transitioning toward a multi-year, gradually tapering subsidy framework allows OEMs to manage pricing adjustments smoothly.
- **Standardize Battery Health Disclosures:** Establish a mandate requiring a standardized State of Health (SoH) metric during mandatory vehicle checkups to protect used-EV trade-in values.
- **Co-Locate Charging Infrastructure with Existing Retail Hubs:** Focus investments on developing fast-charging systems within existing mall parking lots, office complexes, and local fuel retail networks.

Conclusion & Future Scope

Accelerating electric vehicle adoption in India requires a balanced combination of **fiscal support and brand reliability**. Subsidies are indispensable for lower initial acquisition costs and neutralizing the economic entry barrier. However, long-term scaling requires deep consumer confidence in brand stability, technological safety, and dependable after-sales networks.

Future Scope of the Study: Future research should track consumer behavior variations as domestic cell manufacturing gigafactories go fully operational. Additionally, further studies are needed to evaluate the financial feasibility of shifting commercial heavy-duty freight fleets to long-haul electric trucking corridors.

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