

"TATA Motors Marketplace Penetration in the Era of Electric Vehicles in India"

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Abstract

The age of electric cars (EVs) has arrived in India's car sector. Numerous international and Indian automobile manufacturers have been drawn to the Indian market due to the demand for EVs. Due to Zip Tron Technology, Tata Motors has been able to and significantly disprove many of the myths surrounding modern electric vehicles (EVs), including those regarding power, monsoon use, durability, suitability for long-distance driving, and frequency of charging. Additionally, it has led the Company to expand the high-voltage EV design to include our second personal EV option. Due to the trend towards EVs to reduce pollution and protect the environment, the prediction also predicts a chance for Indian automobile manufacturers in the EV segment to assume the lead in the same segment or market by 2030. The COVID-19 aftermath has given the market a broad opening and enabled a gain in share.

Keywords: EV vehicles, EV, Tata Motors, e-vehicles, Indian automobile, battery

Vivek Srivastava, Head of Marketing at Tata Motors, was preparing for his presentation about consumer behavior towards battery-operated vehicles and his view about future trends for e-vehicle demand within the next 3 to 5 years. While interacting with customers while visiting dealers in a few cities, he felt that potential customers were generally curious about the e-vehicle; only 1 out of 50 people was ready to purchase an e-vehicle compared to petrol or diesel fuel-based vehicles. He decided to conduct a research survey about people's purchase decisions to buy an e-car or petrol/diesel fuel vehicles before submitting his final recommendation about the Company's preparedness for an e-vehicle in the future and take product development, supply chain, and assembly infrastructure-related decisions (**Refer to Annexure 8**).

1. Introduction

1.1 Indian Automobile Sector:

In 1982, it was discovered that the automotive industry had obsolete models and only five competitors in a competitive, seller-dominated market. In 1983, the government intended to adopt a joint venture policy to encourage any foreign company working in India's automobile sector to form a joint venture. Suzuki and Maruti Udyog were founded in the same year. In addition, joint ventures from other component manufacturers have joined the Indian vehicle market. In India, this development led to the creation of the buyers' market, which helped to explain further how consumers behaved when buying cars. This change happened between 1983 and 1992. The de-licensing of the automotive

industry began in 1992 and lasted until 2000, when OMEs began opening factories in India for assembly. The emission standards for BSIV and BSVI were implemented in 2017 and 2020, respectively, producing 26.36 million vehicles by the fiscal year 2020. By January 2022, 18,246,837 vehicles, including passenger vehicles, had been manufactured, and a policy for EV battery-operated vehicles was included in the Union Budget for 2022–23. Refer to Annexure 4 for the last three years of cars manufactured in India and the market share of companies that manufactured cars.

The era of electric vehicles has begun in India's automobile industry. The EV symbol has prompted many Indian and foreign manufacturers worldwide

to shop in the Indian market. Several reports from reputed research agencies have shown signs of customer demand for EVs, and even the Indian government is providing the opportunity. The increase in middle-class income has increased the production of various segmented vehicles by April 2022. The prediction also indicates an opportunity for Indian companies to take the electric cars uplifted to be the leader in the same segment by 2030 due to the shift towards EVs to care for the environment through pollution reduction. It is noted that EV production will increase employment by five crore jobs by 2030. The investment (FDI) of US\$ 32.84 billion in the Indian automobile sector between April 2000 and March 2022, and the Indian government expects an investment of around US\$ 8.10 billion by Indian and foreign companies by 2023. The figures show the expectation of a rise in investment. To encourage companies to invest in the Indian automobile sector, the government has announced a Production Linked Initiative (PLI) scheme worth approximately Rs. 25,938 crores in September 2021, in conjunction with the Automotive Mission Plan 2016–26. The Indian government, from 2020 onwards, has brought a policy for EV battery-operated vehicles into the Union Budget 2022–23. (Source: **IBEF Report 2022**)

In the 2021–22 market overview, the passenger vehicle segment showed a share of 14.6% of the total market for automobiles, including commercial vehicles, two-wheelers, and three-wheelers. In the Indian car segment, companies' sales data for 2020 and 2021 indicated that Toyota and Mahindra's growth geared up from the previous year's sales in positive numbers compared to Maruti Suzuki, Hyundai, and Tata Motors.

2. Shift towards EV

According to various reports between 2019 and 2020, the transportation sector in India accounts for 23 percent of pollution, with most cities around 14–20 municipalities found to be highly polluted, resulting in an increase of 5.4% of GDP in the increased cost of health issues due to pollution. It has also been identified that oil

imports between 2019 and 2020 will total US\$ 102 billion. From 2020, the shift of consumers' preferences toward EVs was found to have a very high demand due to the high fuel cost. The states in India, like Andhra Pradesh, Telangana, Uttar Pradesh, and Tamil Nadu, have initiated promotions to attract investments in the production of EVs in their states, like reimbursement of stamp duties, capital interest subsidies, tax exemptions, etc. The attractive schemes given by the government have given rise to developing and catering to the needs of customers and the government.

2.1 Preliminary inputs from customers about e-vehicles

During his visits to Tata Motor's dealers, he interacted with employees working at those dealers, and potential customers visited showrooms to touch and feel the car models and get technical. As well as get price quotations and clarifications on several questions. Refer to Annexure 1, Annexure 2, and Annexure 3 for the benefits of using an e-vehicle, support from the government, and the customer's perceived difficulties or challenges, respectively. He calculated and compared petrol, diesel, and e-vehicle purchase prices and running costs per km. He knew the current purchase price of an electric vehicle was much higher than that of a gasoline or diesel car due to the scale of the economy that needed to be achieved. A supply chain is not fully developed; there is a lot of dependency on the import of components for e-vehicles, a shortage of batteries leading to higher prices, etc. When he compared the cost per km for 15 years of the car's life for a buyer, he was happy to look at the final cost per km figure, and he was convinced that the e-vehicle cost per km would further come down in future years. (Refer to Annexure 6)

3. Tata Motors Electric Vehicles in India

In India, Tata Motors is among the top four manufacturers of passenger cars and the market leader for commercial vehicles. The Company focuses on engineering and tech-enabled automotive solutions that are geared toward the future of mobility. The Company's innovation activities

concentrate on producing ground-breaking technologies that are sustainable and suitable for the growing expectations of the market and the customers, with its brand promise of "Connecting Aspirations" at its core. Tata Motors works to develop innovative products that capture Gen Next customers' imaginations, fueled by cutting-edge design and R&D centers spread across the globe.

Tata Motors has been able to largely dispel current EV stereotypes thanks to Zip Tron Technology, including those about power, monsoon use, dependability, suitability for long-distance travel, and frequency of charging. The five solid pillars of performance—Technology, reliability, charging, and comfort—support these myths. Given the rising demand for EVs and the significance of giving customers who want to transition to electricity a choice of EV options, Tata Motors is pleased to extend the high-voltage EV design to our second offering in the personal EV market.

TATA Motors uses an ecosystem approach with other TATA Group companies to overcome the obstacles preventing customers from switching from petrol and diesel to electric automobiles. **(Refer to Annexure–7 for the ecosystem approach of the TATA groups).**

3.1 Tata Motors Sales and Penetration in the EV Market in India

Tata Motors' entry into the EV market was motivated by a desire to provide customers with no-compromise solutions and to further segment the market through a fully loaded and diverse lineup. Tata Motors is at the forefront of India's green mobility push. The Company's sales volume has increased yearly, which is why Tata is expanding its line of products for India with various body styles and driving ranges. The COVID-19 aftermath has given the market a broad opening and enabled a gain in share compared to the previous two years. The market share is expected to increase by 1600 bps in 2022 with various charging standards and specifications. Every fourth Tigor and every sixth Nexon are marketed as EVs; the percentage of EVs in use is 5%. Forty cities have implemented pricing infrastructure solutions, including Mumbai, Delhi, Bangalore, Hyderabad, Pune, Chennai,

Ahmedabad, Chandigarh, Lucknow, Kolkata, and Vishakhapatnam. The Tata Power Mobile App currently provides access to intelligent charging for Tata vehicles.

4. Conclusion

Technological advancement has geared up the demand for passenger vehicles in India among the electric vehicles segment, with the challenges the electric vehicle manufacturing companies face. The mobility developed by TATA Motors for the customers for the future is based on technology-enabled solutions. Customers who aspire to adopt EVs have given more insight into the same and evolved with high awareness regarding the products, leading towards the choice of EVs in their consideration of passenger vehicles. TATA Motors needs to work on mobility for the charging stations across the market throughout India, which is a prime challenge for the company. TATA motors have supported social causes like keeping the environment greener and reducing emissions to keep the pollution balanced without harming nature. The support from the government and its policies for EVs has given many companies in the automobile industry an opportunity to enter the EV segment. It is challenging for marketing professionals to develop strategies to construct a promising market for EV vehicles based on the awareness of increasing the ratio between EVs, Petrol, and diesel. The future of the automobile market is bargaining for efficient and effective approaches by companies to develop promising EVs on Indian roads.

5. Questions

1. Is it the era of elective vehicles (the passenger car segment) that has any sign of developing the business for Indian automobile companies in India? Discuss it in light of the characteristics of the Indian automobile industry and the consumer's needs.
2. Despite all the government incentives, do consumers want to switch from diesel and petrol-powered vehicles to electric ones? Describe your point of view.
3. Which eight questions will you ask customers to find out what they think about e-vehicles, whether

they would be interested in buying one, and which are the main issues in their perception impacting the e-vehicle segment?

4. What is the future of TATA EV vehicles in India?

6. References

1. <https://datatopics.worldbank.org/>
2. <https://eamrit.niti.gov.in>
3. <https://energizingindia.tv>
4. <https://economictimes.indiatimes.com>
5. <https://evvehicleinfo.com>
6. <https://www.autocarindia.com>
7. <https://www.siam.in/>
8. <https://www.ibef.org/>
9. <https://home.kpmg/>
10. <https://www.cardekho.com/>
11. <https://www.electrikez.com/>
12. <https://vahan.parivahan.gov.in/>
13. www.tatamotors.com
14. www.bescom.co.in
15. www.quora.com

7. Annexure

Annexure– 1

Consumer Benefits of Using Electric Vehicles

- **Lower running costs:** An electric vehicle has substantially reduced operating costs compared to a petrol or diesel vehicle.
- **Low maintenance cost:** An electric vehicle's service cost is meager than petrol or diesel vehicles.
- **Green Environment:** Electric vehicles contribute to lower carbon emissions and a cleaner environment.
- **No noise pollution:** electric vehicle engines produce less noise, so electric vehicles contribute to reducing noise pollution
- **The convenience of charging at home:** Setting up a simple and convenient charging station at your home or office to avoid crowded gas stations during peak hours is easy.
- **Reduced Death:** The death toll of the people in India due to air pollution in 2017 was a 23million, which can be reduced with the adoption of electric vehicles.
- **Savings:** The price of petrol and diesel is increasing daily. The budget allocated for fuel expenses for an individual is growing. With electric vehicles, fuel

expenses can be brought down.

Source: e-amrit.niti.gov.in

Annexure-2

Support from the government for consumers purchasing electric vehicles

- **Purchase incentives:** The consumer receives a direct discount on the price of the electric vehicle
- **Coupons:** monetary incentives where the vehicle purchasers receive a later reimbursement.
- **Interest Subventions:** Discounts on the interest rate are provided when obtaining loans.
- **Road tax exemption:** road tax is not charged at the time of purchase.
- **Exemption from the registration fee:** A new vehicle purchase is exempt from the one-time payment.
- **Income tax benefit:** Offered as a deduction from a person's taxes to the government.
- **Scrapping incentives:** When outdated petrol and diesel vehicles are deregistered, incentives for scrapping are offered.
- **Other:** Additional incentives may be made available, including interest-free loans, top-up subsidies, and special incentives for electric three-wheelers.

Source: e-amrit.niti.gov.in

Annexure – 3

Consumer Difficulty with Switching to Electric Vehicles

- **Service Cost:** The cost of service and wear and tear of the components of the EV vehicles needs to be clarified in the customers' minds.
- **High Cost of Vehicles:** EV vehicles in the present market are very expensive.
- **Lack of battery manufacturers:** Battery manufacturers in India are very few and need to meet the global standards related to EV vehicles.
- **Running Range:** The current EV vehicles are not reaching the specified number of kilometers as promised by the Company Company.
- **Lack of product offerings:** The number of choices a consumer has while purchasing an EV is significantly less when compared to buying a petrol or diesel vehicle.
- **Lack of State EV Policies for Consumers:** State EV policies are more focused on supply-side incentives, i.e., for manufacturers and startups,

and need to pay more attention to the ultimate user of the product.

- **Lack of charging infrastructure:** Adequate charging infrastructure is vital to encouraging users to consider EVs. The charging infrastructure at homes, residences, parking lots, workplaces, or commercial establishments is still in the infant stage.
- **Lack of regulatory and policy framework:** The disposal of batteries, recycling of batteries, and

the disposal of electric vehicles are not governed by any regulations or policies.

- EV and Battery cost
- Range anxiety
- Lack of standardization
- Temperature Issues with Less Performance
- Increase in the electricity demand at a national level
- Environmental concerns

Source: KPMGReport-2020, e-amrit.niti.gov.in

Annexure– 4

Last three years of petrol and diesel car sales figures of the top five market leader companies in India

BrandofCar	2020Sales Volume(units)	2021Sales Volume(units)	2022tillAugust Sales Volume(units)
Maruti Suzuki	133,702	144,761	134,166
Hyundai	40,010	51,600	49,150
Tata	12,430	27,224	47,166
Mahindra	10,756	15,380	29,852
Kia	15,644	16,702	22,322

Source: IBEF Report

Annexure– 5

Tata Motors' e-vehicle sales figures

Year	Sales Volume(unit)	Market Share	PublicChargin g	EV Penetration	CitiesPrese nt	No.of dealerships
FY-22	19,105	87%	2,000	5%	75	143
FY-21	4,218	71%	450	2%	51	97
FY-20	1,325	47%	170	1%	22	43

Source–TATA Motors Annual Report–2021-2022

Brand-wise EV sales in India-2022.



Top OEM wise e-4Wheeler sales

Rank	OEM	Sales	%	Sales	%	Sales	%
1	TATA MOTORS	34,833	84%	11,204	75%	23,629	211%
2	MG MOTOR	3,891	9%	3,103	21%	788	25%
3	HYUNDAI MOTOR	740	2%	169	1%	571	338%
4	BYD INDIA	553	1%	4	0%	549	13725%
5	MAHINDRA	280	1%	117	1%	163	139%
6	KIA MOTORS	223	1%	0	0%	223	-
7	BMW	172	0%	0	0%	172	-
8	MERCEDES-BENZ	169	0%	37	0%	132	357%
	OTHERS	814	2%	333	2%	481	144%
	TOTAL	41,675	100%	14,967	100%	26,708	178%

Source: Vahan Dashboard Data (Jan-Dec 2022) as per 1341 out of 1428 RTOs across 34 out of 36 state/UTs and Telangana Regional Transport portal (Jan-Oct 2022). Low speed e2W data not included.

Annexure- 6

Comparison of cost per km in petrol, diesel, and electric vehicles

The TATA Motors models currently running in the market are Tiago, Tigor, Nexon, Harrier, Safari, and Altroz; among these, Tigore and Nexon cars are

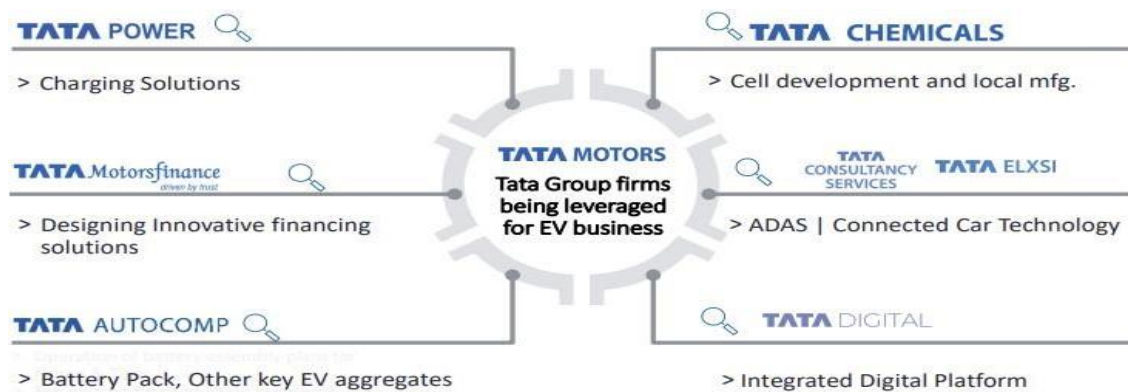
segmented in EV along with other fuel. The life cycle costing of the Top-end model of Nexon on all variants can be seen in the table below (*Can be verified for the present time).

Parameter	PetrolCar	DieselCar	e-Vehicle
Car Make & Model Number (Top End Model is considered)	TATA Nexon XZA Plus LUXS Red Dark AMT	TATA Nexon XZA Plus LUXS Red Dark Diesel AMT	TATA Nexon XZ Plus Lux Dark Edition AMT
Engine Capacity	1199 cc,	1497 cc	30.2KWH
Ex-showroom price	13 Lakh	14.35 Lakh	17.19 Lakh
Life of the car in Metro(Years)	4	4	10(8Warranty on Battery or 1,60,000KM)
Average Kilometer traveled per year (For an individual owner who uses the vehicle for home use) as per Expert opinion	12000km per year	12000km per year	12000km per year
Total number of kilometers driven for 4 years life span	12000*4 =48000	12000*4 =48000	12000*4 =48000 For 10 years life span 12000*10 =120000
Cost/km based on the purchase price (dividing the total cost by the number of Km driven)for a 4-year Lifespan	Rs.27.083 for one year Rs. 6.7	29.89 for one year Rs.7.47	35.8125 for one year Rs.8.95 For 10 years life span 14.325
Fuel Economy (KMPL/KW)	17.05	24.07	For full Charge, it runs 312 Km (Claimed by the Company) For 1kw of Electricity 10.33

Fuelperliter/Unit Karnataka	Rs.101.71	Rs.87.71	101to 200 Kw Charge is 710 ps avg Consumption of electricity in households is 140 KW 140 *710 =99400ps 1kw=710 ps 1Kw=710/100 =Rs 7.1
Fuel cost/km	Rs.5.96	Rs.3.64	Rs.0.687
Maintenance cost(Approximate)1 st year of vehicle per expert and Car Dekho (For newly purchased cars only)	4800	5300	5000
Maintenance cost/km	Rs.2.5	Rs.2.264	Rs.2.4
Total cost/km Cost/km based on price +Fuel cost/km+Maintenance cost/km	Rs 15.16	Rs13.74	Rs.12.037

*Source: Tata Motors official Website, Cardeho.com, Besom Electric Rates -2023, and Expert Interview.

Annexure – 7



Source: Tata Motors report on Future of Electric Vehicles in India on Nov-2021

Annexure– 8

Findings of the survey conducted by Mr. Vivek Srivastava, Head of Marketing at Tata Motors

- Building customer confidence among EV customers is essential in both Nexon and Nexon Max.
- The expectations of customers towards EVs are increasing.
- To increase the product portfolio to meet the varied demands of EV customers.
- Increase demand for long-range travel, i.e., intercity commuting.

- To meet the segments' unique needs like safety, security, and features.
- To increase a more extensive customer base based on different driving multimode options with more torque and safety in EVs, which are included in Nexon, along with 30 percent more battery capacity.
- High-speed charging with the setup of EV charging stations in high-demand areas.
- Annexure 7 can also support supply chain management by developing local manufacturing and having cell development along with a charging solution.

Source: Interview on May 11th, 2022, to what car? India by Mr. Vivek Shrivastava