

TATA Motors Limited: A Revolution in Electric Cars - A Case Study

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ABSTRACT

Purpose: *The whole world is moving toward environmentally friendly and maintainable alternatives to conservative goods. Electric vehicles are regarded as an environmentally friendly and sustainable alternative for transportation. The purpose of the study is to analyze how tata motors became a market leader in the sales and manufacturing of Electric cars.*

Design/Methodology/Approach: *India has the largest untapped market for electric vehicles (EVs), particularly in the two-wheeler category. In recent years, there has been a significant rise in the number of EVs on the road thanks to the rapid introduction of these vehicles by a number of automakers. The most recent electric car to come out of India is the Tata Nexon EV Max, and it promises to be very affordable. Tata Motors, an Indian automaker that operates in one of the world's largest automotive markets, is compared to Tesla. A survey was used by the author to carry out this study. The effect of has been the focus of the study. Secondary data are gathered for the study from a variety of sources, including TATA motors Ltd. websites, research papers, newspaper articles, and journals.*

Findings/Result: *This paper has studied a SWOT analysis of Tata Motors Limited. The analysis reveals that TATA Motors has a huge customer base in the Indian market. it is quite popular and about 73% of electric cars on Indian roads belong to TATA Motors. Tata Motors is India's third-largest company by market share and the market leader in the EV-Electric Vehicle sector. Tata Motors has been able to steadily expand by introducing new products in the most popular SUV and electric vehicle markets. To meet all of its customers' needs and provide them with the best vehicles, the company plans to launch new products in a variety of car segments using these new products and engine transmissions.*

Originality/Value: *This paper studies about how tata became a market leader in electric car manufacturing and overall performance in terms of carrying customer satisfaction.*

Paper Type: *Case Study.*

Keywords: Electric cars, Tata motors, Tesla, Tata Nexon, market Leader, SWOT analysis.

1. INTRODUCTION :

The world's population is growing at a rate of about 1.1% annually, which is hurting our natural resources because more people use up more of the earth's resources as a result of increased demand [1]. Because they don't emit any emissions, electric cars are better for the environment than traditional automobiles. Electric cars run on electric motors that are powered by rechargeable batteries—mostly lithium-ion batteries—rather than conventional fuels like gasoline, diesel, or compressed natural gas. In 2019, approximately 2.1 million electric cars were sold worldwide, bringing the total number of electric cars in the global fleet to a staggering 7.2 million [2]. China is the largest market for electric vehicles, accounting for approximately 45 percent of the market. While sales of automobiles have slowed over the past year, sales of electric vehicles (EVs) have continued to be good thanks to various government grants and subsidies [3]. India is one of the most important markets in the world for automobile manufacturers. India produced approximately 3.77 million automobiles in 2018, a 7.3%

increase from the previous year [4]. In terms of sales, Maruti Suzuki, Hyundai, and Tata Motors are the major players, with 3.38 million cars sold, or 5% more than the previous year [5]. In India, the major automobile giants that have introduced electric cars are Hyundai, Tata Motors, Mahindra, and MG Motors [6]. The total sales figures for all EVs increased by 20% when compared to 2018-2019. In 2019-2020, there were approximately 3400 sales of electric cars. This paper explains in detail how Tata Motors Limited rose to the top of the electric vehicle market in terms of production and sales.

2. OBJECTIVES OF THE STUDY :

The following are the study's goals:

- (1) To trace TATA Motors' path, including how its new marketing strategies brought it back to third place in market share
- (2) How the company promoted its new products by employing marketing strategies like the SWOT analysis, marketing mix, and STP analysis
- (3) To learn how Tata Motors produces electric vehicles at a lower cost.
- (4) To determine whether TATA Motors will be able to maintain its popularity in the Electric Vehicle market.

3. METHODOLOGY :

The information and data used in the analysis come from many different places. Electric vehicles are one of the resources. textbooks for standard reference on Tata Motors, numerous articles about cloud storage, websites, and literature reviews.

4.1 Database searches:

The following are a few examples of online and World Wide Web resources that are frequently consulted for information and are repositories of various conference publications and journals with peer review:

- IEEE Explore
- Google Scholar

4. RELATED WORKS :

Since fuel-powered (diesel/petrol) automobiles have become too common, the term "electrification" has become a buzzword in the automobile industry, indicating that automakers are investing in renewable energy sources to produce electric vehicles [6]. According to a study, consumers' willingness to purchase an electric vehicle is influenced by the price and charging time.

The key results of a systematic literature search using the Google Scholar database for papers published between 2017 and 2022 with the keywords "Electric Vehicles," "Tata Motors," and "Tesla Motors" are listed in table 1.

Table 1: Related works on Electric Vehicle by TATA Motors , Tesla and other Automobile industry.

S. No	Field of Research	Focus	Contribution	References
1	Automobile’s sector of electric Vehicle	Revolution of Electric Vehicles	The proliferation of electric vehicles (EVs) has two primary effects on power systems: it introduces a new sector of power demand growth and offers the possibility of a load-balancing effect.	Sun, Y. K., (2019). [7]
2	Revolution of Electric Vehicle in the universe	Realizing the electric-vehicle revolution	Technology-behavior interactions at various scales, such as demand for power systems, charging infrastructure, vehicle performance, driving habits, and individual adoption behavior.	Jetin,B et.al(2020). [8]

3	Revolution of Electric Vehicle in universe	Adoption of Electric vehicles in India	Due to the new technology and limited charging infrastructure, EV adoption in India has been sluggish. Additionally, the high cost of EVs is a major reason for less interest in India's price-sensitive market.	Jape, S. R., & Thosar, A., (2017). [9]
4	Electric vehicles in India	EV revolution in India	With 30 percent of electric cars on the road, Delhi and Uttar Pradesh are leading India's EV revolution.	Khurana, A., et.al.,(2020). [10]
5	Adoption of Electric vehicles in India	factors that influence a customer's decision to buy an EV	India's EV revolution is being led by Delhi and Uttar Pradesh, which currently have 30% of all vehicles on the road.	Shalender, K., & Sharma, N., (2021). [11]
6	barriers in Adoption of Electric vehicles in India	obstacles preventing India's adoption of EVs	The country's high manufacturing costs as a result of raw material imports, insufficient legislative support for customer incentives, and widespread technical issues related to products were identified as major obstacles.	Gujarathi, P. K., (2018). [12]
7	Electric Vehicles from Tata Motors	Tata Motors' investments in electric vehicles	Major obstacles were identified, including the country's high manufacturing costs as a result of imports of raw materials, inadequate legislative support for customer incentives, and widespread product technical issues.	Kumar, A., & Hallur, G. G. (2020). [13]
8	Electric cars from Tesla	Lead acid batteries are replaced with lithium-ion batteries.	Look into the Tesla Roadster™, which uses lithium-ion batteries rather than lead-acid or nickel-metal-hydride batteries like the majority of electric cars in the past.	Stringham, E. P et.al ., (2015). [14]
9	Tesla Entrepreneurship strategy	Electric vehicles with zero emissions are superior to gasoline vehicles.	The goal was to develop zero-emission electric vehicles that were superior to gasoline-powered vehicles and to provide compelling mass-market electric vehicles as soon as possible to accelerate the spread of sustainable transportation.	Bilbeisi, K. M., & Kesse, M. (2017). [15].
10	Hyundai Electric Cars	Emissions of greenhouse gases (GHGs) and their effects on the environment.	A comprehensive model for selecting and ranking a group of battery electric vehicles is proposed by utilizing the multi-attributive border approximation area comparison (MABAC) method and taking into account a variety of technical and operational characteristics, such as fuel economy, base model pricing, quick accelerating time, battery range, and top speed.	Biswas, T. K., & Das, M. C. (2019). [16]

5. REVOLUTION OF ELECTRIC VEHICLES :

India is also attempting to capitalize on the EV revolution, with domestic EV sales increasing annually. Over the past few years, the global adoption of electric vehicles has increased. Electric vehicles (EVs), particularly two-wheelers, have the largest untapped market in India [17]. Due to the rapid introduction of EVs by a number of automakers, there has been a significant increase in the number of EVs on the road in recent years. The market for electric vehicles (EVs) is expected to be worth at least \$475 billion by 2025, according to a recent study. Up from 1% today, electric two-wheelers are anticipated to be used by up to 15% of the population by 2025. As business activity picks up and the Indian economy recovers in 2022, the auto industry is set to enter a new phase of growth, innovation, and investment. However, the EV's future is constrained by numerous obstacles [18]. In spite of the government's strenuous efforts to promote the use of electric vehicles (EVs), the absence of high-performing EVs, high initial costs, and inadequate infrastructure are major barriers to their widespread adoption in India. Capital cost has always been a major consideration when making a purchase decision, with 63% of consumers believing that an EV is out of their price range [18]. The insufficient charging infrastructure in our nation is a significant obstacle to expanding EV penetration. When compared to conventional gas stations, which are more difficult to locate due to high investment costs and difficult infrastructure development, charging stations face a number of challenges, some of which include the availability of charging slots, managing grid connections, and dealing with multi-tenant buildings. Nickel is expected to run out, so it would be hard to produce more lithium [19]. Manufacturers may be forced to use mineral inputs of lower quality as a result of a lack of supply, which would have a negative impact on battery performance.

India experienced a power supply shortage of 1,201 million units in October 2021, the highest level in 5.5 years [20]. If our nation is to make the revolutionary switch to electric vehicles, it must address the fundamental issue of power scarcity. Power outages can last for several hours in rural areas, smaller towns, and metropolitan areas like Delhi and NCR. Summers is likely to have a significant impact on the transition to electric vehicles because the majority of EV users will be two- or three-wheelers that do not have continuous power [21].

While actual customers are in tiers II and III, where travel distances are between 15 and 20 kilometers, the EV revolution is currently focusing on metros, where customers are concerned about range due to daily travel distances of 100 kilometers [22]. Customers will be able to ride here for 150 to 180 kilometers after it is electrified without having to look for a charging station or recharge. The underdeveloped charging ecosystem continues to prevent a greater penetration of the two-wheeler consumer market, and the electric vehicle industry is unable to meet rising demand due to a variety of potential market obstacles. Due to the concentration of the supply chain in particular regions and the absence of a robust manufacturing ecosystem for the materials associated with the EV revolution, these issues are likely to become even more prevalent in the coming year

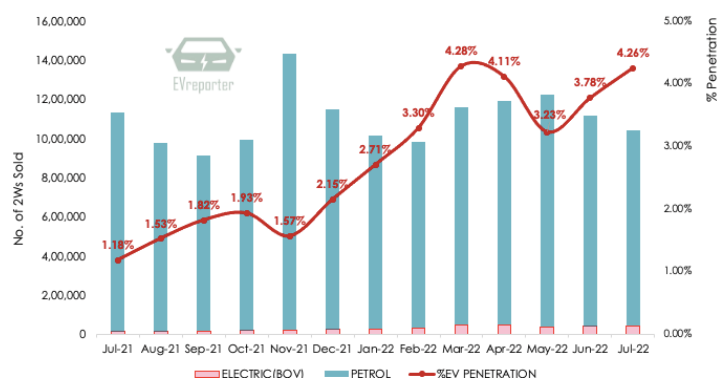


Fig. 1: Sales of Electric Cars Vs Fuel Cars in India in July 21 – July 2022 [23].

The government implemented a slew of measures in line with the "Make in India" campaign to encourage manufacturers to produce components locally and construct a structured policy framework

because India is heavily dependent on China for lithium supply chains, which prevents the widespread deployment of EVs. Customers' confidence in riding electric vehicles on Indian roads will likely increase as a result of recent policies, such as the policy that allows for battery swaps [23]. Green energy production and decentralization of energy distribution are the goals of these policies. Although both models are likely to be utilized in the future, the battery-swapping power supply model has avoided the issue of a lack of charging infrastructure. India, on the other hand, does not have the infrastructure or technology to manufacture lithium-ion cells or chips; The road ahead will be difficult until the fundamental infrastructure is in place, as a result of rising tensions and volatile import conditions caused by rising dollar prices [23].

It is challenging to establish the necessary infrastructure for second-hand sales due to the current fragmentation of the electric vehicle market brought about by independent dealerships. Also, warranties, vehicle quality, and strength are all very different. Vehicles frequently lose their shape due to wear and tear or dwindling batteries [24]. For the sale of used cars, there is currently very little formal infrastructure in place. Shortages of global semiconductors further exacerbate supply chain issues and encourage the localization of goods for automotive OEMs (Original Equipment Manufacturers). However, in order to meet the 50% localization requirement for government subsidies and lessen reliance on imports, large OEMs are taking the initiative to enter the EV component market [24]. Due to a robust financing ecosystem, policy incentives, technological advancements, and substantial infrastructure that is affordable, accessible, and serves all consumer groups, the EV market is likely to experience significant expansion over the next ten years.

6. ABOUT ELECTRIC CARS MANUFACTURED BY TATA MOTORS And TESLA :

6.1 Electric Cars by TATA MOTORS:

In India, the Tata Motors electric vehicle line has sold 50,000 units. At the company's Ranjangaon plant near Pune, the 50,000th electric vehicle was the Nexon EV Max. The four electric vehicles that the company currently offers are the Nexon EV, Tigor EV, Tiago EV, and fleet-only Xpres-T EV [24]. At the moment, the Tiago EV is the nation's most affordable electric vehicle. A Glacier White Nexon EV Max was the 50,000th electric vehicle. By the year 2025, Tata Motors intends to sell ten electric vehicles in India.



Fig. 2: Tata Tigor EV [25].

It should not come as a surprise that the number of people buying electric vehicles has recently increased due to the ever-increasing costs of conventional fuels. Tata Motors, which sells inexpensive

automobiles, has been there to take advantage of the situation and now holds an unprecedented lead in the market for electric automobiles



Fig. 3: Tata Tiago EV [25]

The company sold 15,518 electric vehicles in the first half of FY2023 (April to September 2022), giving it an overwhelming 85.53 percent market share. The monthly average is 2,586 units as a result of this. In FY2022, the business had sold 19,105 units, with the first half of FY2023 accounting for 81% of those sales [25].



Fig. 4: Tata N EXON EV [26].

In addition to its early advantage, Tata's success in the electric vehicle market can also be attributed to the absence of rivals at this price point. Only Tata produces electric vehicles with prices below Rs 20 lakh at this time. The MG ZS EV, the following nearest contender, begins at Rs 22.58 lakh (ex-display area) [26].

Motors by Tata: EV timeline The breadth and variety of the company's offerings are another factor in its success. The company's first electric vehicle, the Tigor EV, was made available to fleet managers only at the time of its release in June 2019. Tata's EV strategy really took off with the Nexon EV, which was released in January 2020, even though the electric compact sedan was later made available to private buyers as well. Because it was the first electric vehicle with a usable driving range and the SUV form factor, the Nexon EV quickly attracted early adopters [26].

In 2021, both the fleet-only Xpres-T and the Tigor EV were updated with larger batteries, increased power, and increased range, making them more appealing. In May, Tata also brought the Nexon EV up to date with a Max model that has better equipment and a longer range. The Max model improved the vehicle's usability, making it now possible to travel to remote locations, despite the fact that it was significantly more expensive than the standard Nexon EV [27].

The Tiago EV, which Tata just launched for Rs 8.49 lakh, is the most affordable electric vehicle currently available in India. The final model in Tata's first phase of electrified vehicles is the Tiago EV. These models were quick and inexpensive electric vehicle conversions of existing ICE platforms. It is anticipated that deliveries will begin in January 2023. Tata produces electric versions of its entry-level hatchbacks, compact sedans, and compact SUVs as a result [27].

6.2 Upcoming Tata EVs:

Based on its Gen-2 architecture, Tata Motors will launch additional electric vehicles in the future. In order to make its current ICE platforms compatible with electric vehicles, the company will make extensive changes to them, such as making them flat-bottomed [28].

Tata Altroz EV

Tata Motors displayed the Altroz EV concept at the 2020 Auto Expo. The company has begun testing the electric hatchback, which it intends to introduce before the end of 2022. When compared to the standard model, the new Altroz EV has different bumpers, a closed-off grille, air dams with a star pattern, new alloy wheels, and a section of the tailgate that is blacked out [28].

The specifics of the powertrain have not yet been made public. Tata's most recent Ziptron electric technology, which powers the Nexon EV Max, is expected to be included. It might not have the same power rating and battery size as its electric subcompact sibling [28].



Fig. 5: Tata Altroz EV [28]

Tata Curvv EV:

The Curvv electric SUV Coupe concept has been made public for the first time by Tata Motors. By 2024, the nation will see the introduction of the production SUV Coupe. The Tatas X1 platform that supports the Nexon range serves as its foundation. The platform has been modified by Tata engineers to accommodate larger models and various battery packs. It is likely that the SUV Coupe will have a length of 4.3 meters and a longer wheelbase. The available powertrains have not been made public by Tata Motors. It is likely to receive a larger battery pack of 40 kWh with a range of over 400 kilometers. It will compete with the Hyundai Kona EV and the MG ZS EV [29].



Fig. 6: Tata Curvv EV [29]

Tata Sierra EV:

For its future EVs, Tata Motors will use a skateboard, a new Sigma architecture, and a converted IC engine platform. At the 2020 Auto Expo, the company had displayed the Sierra EV concept. Tata's brand-new SIGMA platform will serve as the foundation for the Sierra Electric Vehicle's production version. It is largely based on the Alfa platform, but it has been significantly altered for electrification. The manufacturer has altered the location of the fuel tank, removed the transmission tunnel, and pushed the side members to create a flat floor for the battery pack in order to accommodate an electric powertrain.



Fig. 7: Tata Sierra EV [29]

Since Goodbye Engines recently discovered that there will be four Gen-2 vehicles, which were first demonstrated by the Curvv concept, it is likely that we will see the Altroz, Punch, Sierra, and the development version of the Curvv as the four electric vehicles in the following period of Goodbye's charge [29]. The Avinya concept is an example of a born-electric vehicle that uses the architecture of a skateboard.

7. TATA NEXON EV MAX VERSUS TESLA MODEL 3. :

The Tata Nexon EV Max is India's most recent electric vehicle, and it promises to be very affordable. Tesla is compared to Tata Motors, an Indian automaker that operates in one of the largest automotive markets in the world. This is because Tata Motors is making electric cars more accessible to everyone in India, as Tesla has done in nearly every market it has entered. Tesla demonstrated to the entire world that electric vehicles are not like the gas-guzzlers we have all grown accustomed to over the past few decades.

Additionally, Tesla played a significant role in convincing a number of governments around the world that the time has come to begin the transition to a future based solely on electricity. The Tata Nexon EV Max is the product of India's efforts to promote electric vehicles and is one of those nations committing to such a future. When we compared it to other American-made electric cars, the Nexon EV Max stood out because it was less expensive than a Tesla Model 3 and had more range.



	TATA NEXON EV MAX	TESLA EV MODEL 3
FEATURES		
Mileage	312 km/full charge	651 KMFC
Max Power	127.0 Bhp	259 BHP
Transmission	AUTOMATIC	AUTOMATIC
Fuel Type	ELECTRIC	ELECTRIC
Seating Capacity	5-Seater	5-Seater
price	Rs 14.49 lakh to Rs 16.99 lakh	₹1.5 Crore Expected

Fig. 8: Tata Nexon EV Max Versus Tesla EV Model 3 [29].

To put things into perspective, the standard rear-wheel drive Tesla Model 3 is priced at \$46,990 and is regarded as the ideal electric vehicle for lengthy journeys. According to the rate of change in effect at the time this article was published, the Tata Nexon EV Max costs 1,774,000 rupees, which amounts to slightly less than \$22,800. According to Tesla, the Model 3 will travel 267 miles on a single charge. On the other hand, the Tata Nexon EV Max claims a range of 271 miles on a single charge [29].

Yes, the Tesla Model 3 is in a class of its own when it comes to performance because it takes 5.8 seconds to reach 60 mph. The Tata Nexon EV Max completes the same task in slightly less than nine seconds. The Tata can only travel 87 miles per hour, whereas the Tesla Model 3 can travel 140 miles per hour. But keep in mind that the cost difference is double [29].

Additionally, the Nexon EV Max is designed to be driven in a country where an average speed of 60 miles per hour on daily commutes is considered to be flying, despite the fact that it may sound a little bit sluggish to us because we are accustomed to vehicles like the insane Tesla Roadster. Thus, in Indian road conditions, which is where the Nexon EV Max is designed to be, it is more than enough [29].

8. FACTORS USED BY TATA MOTORS TO MANUFACTURE ELECTRIC CARS LESS COST :

The majority of Tata Motors Limited's investments go toward employee training and development. This creates an atmosphere that encourages morale, motivation, and greater achievement. It has been successful in expanding into a variety of new markets [29].

8.1 The battery challenge:

Localization of batteries remains the greatest obstacle in the production of inexpensive electric vehicles. While Stellantis' Jeep and Citroen brands continue to heavily localize India-specific models, the

automaker has no immediate plans to locally source battery cells, though it will do so in the coming years [30].

8.2 Backward Integration Support:

In order to encourage the electrification of automobiles, the company is working to improve vertical integration within the group. Under the "One Tata" strategy, Tata Power, Tata AutoComp, Tata Elxi, and Tata Technologies already make significant contributions to Tata Motors' EV plans. The group will soon announce a strategy for localizing cells and batteries [30].

8.3 Research & Development:

Tata Motors and its EV Nexon possess the necessary financial strength, research and development capability, and customer trust. However, they face a few unique difficulties. Even though Tata Motors has spent more on R&D than the average company in the industry, the company hasn't been able to compete with the industry's leaders in terms of innovation [30].

9. SWOT ANALYSIS :

TATA Motors SWOT analysis explains how the company takes advantage of its opportunities to grow and expand. It might also demonstrate how the business uses its advantages to strengthen its position in the market while also working to overcome its weaknesses. The expansion strategy of TATA MOTORS LIMITED is also highlighted in the company's SWOT analysis.

9.1 STRENGTHS:

An organization's strengths are what distinguish it from the competition and what it excels at. The following are Tata Motors Limited's strengths:

- ✓ **The second-largest automaker in India:** Tata Motors increased its market share from 8.27 percent in FY21 to 12.14 percent in FY22. Since FY09, Tata has had the highest share. in the 19 years prior to COVID [31].
- ✓ **Recognition of the Brand:** Tata has established itself as India's best-performing EV car manufacturer while simultaneously consolidating sales since 2021. Powered by sales of its flagship Nexon EV, Tata has established itself as the best-performing EV car manufacturer in India since 2021 while consolidating sales [32].
- ✓ **Making vehicles that are ready for the future:** In FY21, Tata introduced a brand-new line of vehicles within its CV segment that are compliant with BS6. India's government established the BS-6 emission standard to reduce pollution [33]. Tata is also a pioneer in the production of hybrid and electric buses, having delivered 645 e-buses to date. In January 2022, the manufacturer of automobiles also introduced CNG-powered vehicles to its green market segment [33].
- ✓ **Intelligent vehicle segmentation of the market:** With prices ranging from Rs 5 lakh to Rs 20 lakh, there is a Tata model for almost every customer. Every Rs 20,000 mark, Tata vehicles come in between 10 and 14 variants, giving customers something to choose from [34].

9.2 WEAKNESS:

- ✓ **Operating expenses that are higher and profits that are lower:** - Despite the fact that the company initially acquired well-known brands like Jaguar and Land Rover, its dependence on its subsidiaries grew. The result has been a decline in the overall sales and profits of the business over the past five years [35].
- ✓ **Disputations:** - 2008 marked the beginning of the Tata Nano construction project in India, Singur, and West Bengal. The land on which the business planned to construct a factory was given to the government of West Bengal by the Land Acquisition Act of 1894. This happened because West Bengal wanted Tata Motors to open a business in the state [36].
- ✓ **There are issues with Jaguar Land Rover, which include:** For FY2020/21, Tata Motors reported a Q4 loss of more than \$1 billion and deducted \$2.1 billion for 2021's overhaul of the UK-based luxury brand business. It also stopped making semiconductor chips at its two main factories in Britain in May of the same year [36-37].

✓ **Limited Accessibility:** - As we saw, Tata Motors is in charge of the business in more than 125 nations. Sadly, however, the business did not have the same impact as Volkswagen, Ford, Toyota, or Honda, its rivals [38].

9.3 OPPURTUNITIES:

✓ **product marketing:** - Social media is used by nearly every major brand and business to connect with their target audience. Additionally, Tata Motors ought to maximize its use of all social media platforms and increase the amount of time it spends interacting with the people who are important to them. which will make it simpler for the business to obtain accurate feedback for the purpose of enhancing its services and products [39].

✓ **The Tata Nano:** Despite life the greatest reasonable model, the Tata Nano was unsuccessful in India and was ultimately discontinued in 2018. The Service and the Supply Chain: - The company is still able to evaluate the model's viability in other countries [40-42]. The most efficient strategy for market expansion is to expand the distribution network and supply chain system of the company's current market [43].

✓ **Combination, joint venture, and acquisition:** - The company has already benefited from this because it owns well-known brands like Jaguar, Daewoo, Hitachi, and others. With other brands, the company ought to continue following the same pattern. because it will assist the business in increasing profits and sales [44].

9.4 THREATS:

✓ **Pandemic:-** The global economy and human health were both devastated by the pandemic. During the epidemic, many people lost their occupations and many businesses went out of business. Pandemics will always pose a significant threat to all businesses [45].

✓ **The competition:** - Tata Motors faces significant competition from Honda, Hyundai, BMW, and others. The company loses market share as the market share of its competitors and customers grows [46].

✓ **Price:** - Because their competitors offer the most cutting-edge advanced designs and features at lower prices, Tata Motors is constantly in price competition with them. which, in turn, has an effect on Tata Motors' sales and profits [47].

✓ **Competitors' New Ideas:** - Their rivals are able to create cutting-edge designs and cutting-edge technologies in this industry because they have access to numerous resources and skilled professionals. Innovation is beneficial to industrial expansion, but it also poses a threat to the sector [48].

10. PERFORMANCE OF THE COMPANY :

10.1 Sales Performance of the company:

Tata Motors Limited’s sales in units across all range of vehicles for the past decade is tabulated below. The data is collected from secondary sources.

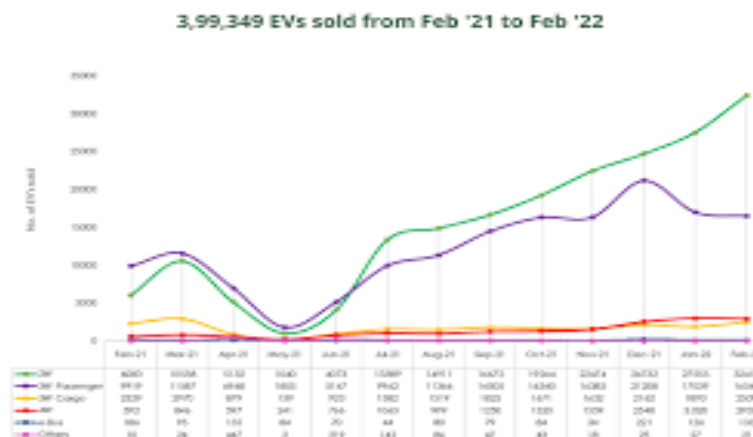


Fig. 9: EV category wise sales trend from Feb 2021 – Feb 2022 [49]

In February 2022, 32,416 high speed EVs were sold, compared to 6083 units in Feb 2021. Sales of the EV have reached 16540 units, a 67% increase over the same month last year [https://evreporter.com/indias-electric-vehicle-sales-trend-february-2022].

10.2 Profit Analysis of TATA Electric Cars:

From the 2010 fiscal year to the 2023 fiscal year, Tata Motor Group's net revenue. For the fiscal year 2022, Tata Motors reported revenue of approximately 2.8 trillion Indian rupees or approximately 3.4 billion US dollars. India's most valuable corporate brand was Tata in 2019.

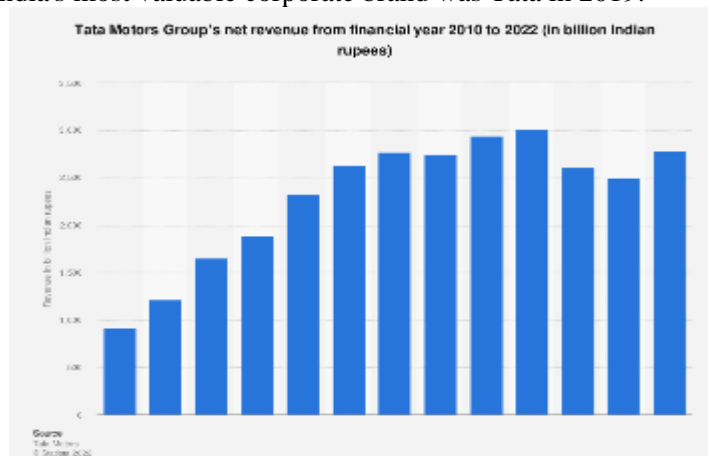


Fig. 10: Profit Analysis of TATA Motors from year 2021-2022 [50].

11. FINDINGS :

The subject of this paper is Tata Motors Limited's SWOT analysis. According to the analysis, TATA Motors has a large customer base in the Indian market, is well-known, and is responsible for approximately 73% of electric cars on Indian roads. Tata Motors is the market leader in the EV-Electric Vehicle segment and the third largest company in India by market share. With the launch of new products in the most popular SUV and electric vehicle segments, Tata Motors has been able to grow steadily. With these new products, the company is also planning to launch new products in various car segments with different engine transmissions to meet all of the needs of its customers and provide them with the best vehicles.

12. RECOMMENDATIONS :

Here are 3 recommendations to make the Tata EV carts even better:

12.1 Resolve Range anxiety:

The range of an electric car is one factor to consider. The term "range" refers to how far it can travel when the battery is fully charged. Currently, the Automotive Research Association of India (ARAI) claims that this electric vehicle has a range of approximately 300 kilometers, but the actual range is between 200 and 250 kilometers. In city traffic, it might touch even lower than that. As a result, people are reluctant to purchase this car [49].

12.2 Battery issues:

An electric car's battery performance should be excellent to win a buyer's trust. Numerous Tata Nexon EV owners currently face numerous battery issues, including low performance, heating issues, sudden battery exhaustion to its bare minimum, and other issues. Even though customer support services are in place to assist in resolving these issues, battery performance still needs to be improved. In addition, the battery's immediate availability is a prerequisite for considering this automobile [50].

12.3 Charging of the battery:

Because it is an electronic vehicle, buyers are very concerned about how long it takes for the battery to fully charge from its zero initial limits. It takes approximately 10 hours to fully charge the Tata Nexon

EV's current 30.2 kWh battery pack from zero. This indicates that the user must wait overnight to drive this vehicle, particularly over a longer distance. People are resistant to considering the Tata Nexon EV for interstate travel for a number of compelling reasons [50].

13. CONCLUSION :

Tata Motors Limited, renowned for its dependability and quality, is a robust business that has been supported by its parent company, Tata Group, as a result of various acquisitions and mergers. The substantial amount of money the company spends on research and development demonstrates the expertise of its workforce. Since the success of any industry is dependent on its workforce, it is essential to educate individuals for the greater good. The vehicles of the future will be electric and powered by gasoline. Tata Motors will greatly benefit from an increase in sales if it is able to produce reliable gasoline versions of its current models. Additionally, the future is electric vehicles. Tata will continue to be the market leader in the future because Maruti and Hyundai will not compete in the EV market. If Tata can keep improving its EV models and meet the needs of its customers by launching EVs priced between 10 and 15 lakhs that are SUVs with all the necessary features like safety and range, Tata will continue to be the market leader.

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