

# ***ZOOM ELECTRIC (ZE) DATA ANALYSIS PROJECT***

## **Business Problem**

Zoom Electric (ZE) is an electric automotive venture of a leading automotive manufacturer ZOOM MOTORS India Private Limited. We have automotive and scooters models like - FioNex, Sprint, and Parker and its Limited Editions are some of its premium scooter variants. We have been providing high quality products and customer support for several years. However we are facing challenges due to several factors like increase in material cost, charging stations and a tight labor market resulting in increased labor costs. As a result, the company's profitability is declining, and they are seeking ways to improve their profitability. To tackle this challenge, they are performing analysis to find ways to increase their sales, which can help boost the total revenue generated.



## **Main Challenges**

- **Increase in material cost:** The main part of an electric scooter is the frame, which is made of Aluminum alloy or Carbon fiber. At present, Carbon Fiber is costlier compared to Aluminium and there's an increase in their prices which affects overall profitability of the company.
- **Charging station setup cost:** The government's numerous programmes encouraging the use of electric vehicles to cut pollution have increased the demand for them. Because of this, businesses are compelled to install expensive charging stations at various locations.
- **Increased labor cost:** Because there aren't enough trained workers in the electric industry, labor costs for expert workers have gone up.

## Objectives

- **Increase number of units sold:** By increasing the number of units sold, we can increase the total revenue generated and mitigate the impact of challenges we are facing.
- **Improve pricing strategy:** Companies must analyze the market conditions, determine what their core consumers prefer, and then establish an effective pricing strategy to keep them attracted and retained.
- **Enhance customer experience:** To set ourselves apart in a highly competitive industry and guarantee customer loyalty, we must concentrate on offering a seamless and convenient experience for our customers, from test drive booking to product purchasing and delivering products to them.

The end goal of this task would be to analyze the sales data available and to identify opportunities to increase the sales of products, which can ultimately lead to increased profitability for the company.

## Basic Analysis

The basic analysis provides insights about the monthly and annual sales volume of units sold, how many customers prefer buying from a dealership versus doing their shopping online, and how many units of each product have been sold annually. These results will be helpful in formulating plans to boost sales and refine pricing for each product. **Table 1** shows the number of units sold every month.

	date	no_of_units_sold
0	2018-07	1119
1	2018-08	1046
2	2019-05	1029
3	2018-06	993
4	2017-07	973
5	2018-05	945
6	2017-08	918
7	2018-09	867
8	2017-06	867
9	2019-04	848

**Table 1**

To acquire a better knowledge of the annual trend of the number of units sold and total revenue generated by these sales. **Table 2** shows that from 2013, the annual number of units sold has increased, reaching a peak in 2018. Since the total amount of revenue earned is directly proportional to the number of units sold, the trend in total revenue is similar to the trend in annual unit sales. Since we only have data for the first half of 2019, thus there were fewer units sold. Therefore, there is an opportunity for improvement over the next six months, in order to increase the sales and hence increase profitability.

	date	no_of_units_sold_per_year
0	2018	9517
1	2017	8473
2	2016	5332
3	2015	3795
4	2019	3758
5	2014	2976
6	2013	1424
7	2011	1231
8	2010	738
9	2012	467

**Table 2**

Zoom Electric provides a variety of electric scooters, including the FioNex, Sprint, Parker, and its Limited Editions. We'll look at how many of each model have been sold, how long they've been on the market, and what their average annual sales have been since they were first produced. According to **Table 3**, the FioNex have the highest sales followed by the Sprint model. But if we see the number of units sold per year, FioNex is still the highest but Sprint limited edition's unit\_sold\_per\_year is more than the Sprint model which shows that Sprint limited edition dominated the market after FioNex model was discontinued. We see that the number of years in market value for some products is zero, indicating that they are recently introduced products and we also notice that FioNex Zester outperforms FioNex limited edition and Parker. Thus, there is potential for growth in terms of boosting sales of both recently launched products as well as older products, as older products may sell at a discounted price if they become outdated.

	model	total_units_sold	years_in_market	units_sold_per_year
0	FioNex	18904	5	3780
1	Sprint	7328	3	2442
2	Sprint Limited Edition	5803	2	2901
3	FioNex Zester	1122	0	1122
4	Parker	1037	1	1037
5	FioNex Limited Edition	90	0	90

**Table 3**

Zoom Electric conducts digital marketing campaigns by sending emails to customers about new product launches and offers during the festive season. We will see how many customers prefer buying from a dealership versus doing their shopping online, and how many users view email and click on links in email. According to **Table 4**, 21K(~55%) customers prefer online shopping over in-store shopping. We further analyzed and observed that ~20% of customers view emails and ~12% of them click on links present in email. From **Table 5** we observed that emails with subject about discounts were checked more frequently by the customers. Therefore, we can improve by increasing offers on products during the festive season and sending emails promoting upcoming sales which can lead to an increase in the number of sales, hence increasing profitability.

	channel	no_of_users	total	percentage_of_users
0	internet	21063	37711	55
1	dealership	16648	37711	44

**Table 4**

	email_subject	total_users_clicked_email_links
0	Save the Planet with some Holiday Savings	867
1	A New Year, And Some New EVs	845
2	Green Cars , Green Friday Offer	802
3	We Really Outdid Ourselves this Year	613
4	Sprint Up your Ride	595

**Table 5**

## Advanced Analysis

In advanced analysis, we'll look at the overall revenue produced by various models and try to determine why sales of specific products dropped in a particular year. From our research, we found that the FioNex model generated revenue of ~147 crores over a period of five years, followed by Sprint and its limited edition as shown in **Table 6**. We must concentrate on boosting sales of Sprint, its limited edition as well as the recently released FioNex Zester as the Model FioNex, its limited edition, and Parker are no longer manufactured. FioNex Zester, although being the most recently launched and cheapest of all, is still not preferred by customers. This could be due to a lack of features, product cost that does not match its quality, or some fault that buyers have reported, causing other buyers to reconsider before purchasing it. As a result, we have the opportunity to enhance the product, review price, and, if there are any faults, repair them in the next batch production and notify buyers via emails or adverts.

	model	base_price	total_revenue_in_crores	no_of_units_sold
0	FioNex	79998.0	147.474619	18904
1	Sprint	95998.0	70.347334	7328
2	Sprint Limited Edition	111998.0	64.992439	5803
3	Parker	111998.0	11.614193	1037
4	FioNex Zester	55998.0	6.282976	1122
5	FioNex Limited Edition	127998.0	1.151982	90

**Table 6**

From **Table 7** we notice that, Buyers have preferred the Sprint limited edition over the Sprint model since its release. Despite being released a year later and costing more, it has generated about the same amount of revenue as Sprint from **Table 6**. In 2019, we see a decrease in total revenue for all products when compared to previous year sales. We then examined the monthly sales of all products for the year 2019 and compared them to previous year sales, discovering that all product sales are high from April to August. The decline in sales in 2019 may be due to the fact that we only have half a year of data, but we still see this as an opportunity to improve sales for the second half of the year. Additionally, because sales are high from April to August, we can try to improve sales during other months, which would boost profitability and help the company overcome the challenges it is facing.

	date	model	total_revenue_in_crores
0	2016	Sprint	5.625483
1	2017	Sprint	25.602667
2	2017	Sprint Limited Edition	23.765976
3	2018	Sprint	27.685823
4	2018	Sprint Limited Edition	28.738687
5	2019	Sprint	11.433362
6	2019	Sprint Limited Edition	12.487777

**Table 7**

Zoom Electric can estimate how much their overall revenue could increase by selling 15% more scooters. This research provides Zoom Electric with all possible areas that could help them boost their sales, and if it is a realistic strategy, then the company's profitability will increase. While attempting to increase profitability, customer support, product service and quality should not be compromised as this might lead to dissatisfied customers, resulting in decreased sales. According to **Table 8**, if the company's number of units sold increased by 15% in 2019, then the company's turnover would increase by ~4.5 crores.

	date	model	actual_no_of_units_sold	total_revenue_in_crores	incremented_no_of_units_sold	incremented_total_revenue_in_crores
0	2019	FioNex Zester	1122	6.282976	1290	7.223742
1	2019	Sprint	1191	11.433362	1369	13.142126
2	2019	Sprint Limited Edition	1115	12.487777	1282	14.358144

**Table 8**

## Conclusion

To summarize, analyzing revenue data such as total revenue and number of units sold is critical for a ZE to maximize its profitability. Companies can work on improving areas such as pricing strategy, product launch date, number of units sold and discounts offered during festive season which would lead to buyers attraction, providing opportunity to improve sales. Higher number of sales is an important feature that can enhance profitability since it allows ZE to maximize revenue. ZE should revise its product prices as it might be one of the reasons that buyers are not preferring that product. Furthermore, boosting profitability should not compromise buyer's satisfaction or safety. Companies may achieve long term success in a highly competitive environment by adopting data driven strategy for revenue analysis and price optimization.