

EV Market Segmentation Report

Solo Project

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GitHub Link – <https://github.com/Hemant-Dua/EV-Market-Segmentation>

1. Fermi – Estimation

The problem statement is to find out the perfect market segment to target on, in the area of Electric Vehicle (EV) market. And also answer the following questions:

- What type of EV will the company will produce?
- To whom the EV will be sold or Who is the target audience?

2. Data Sources

The Data for the following report was hoarded from Kaggle on the following basis:

- Type of EV (2-wheeler, 3-wheeler, 4-wheeler, bus, etc.)
- Electric Charger Location Data
- Financial Sales according to year
- Demographic area, rating, surveys of the customers buying from existing EV companies

3. Data Preprocessing

Importing Libraries: Firstly, we will be importing the required libraries needed for the process.

Import pandas as pd

Import numpy as np

Import matplotlib.pyplot as plt

Import seaborn as sns

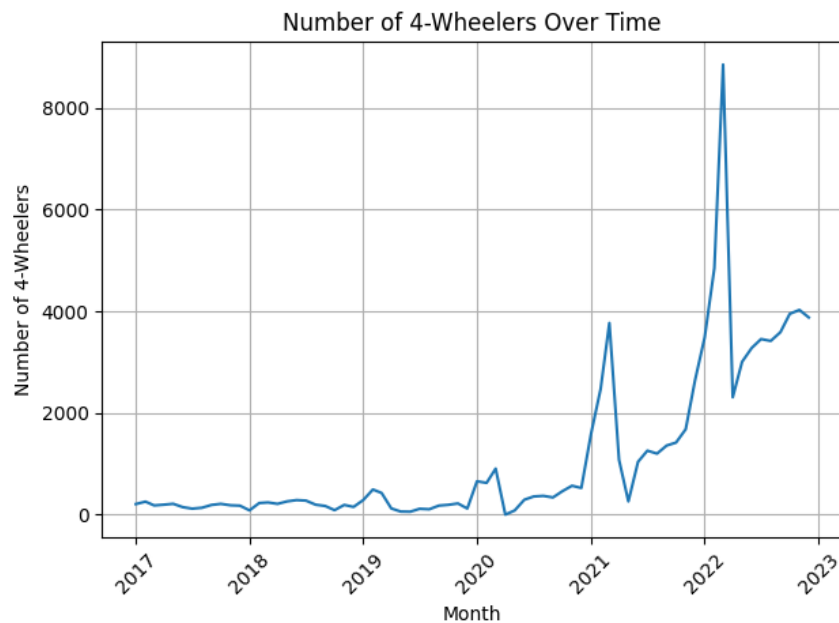
- *Pandas* is used to make dataframes and regulate data.
- *Numpy* is used for mathematical calculations in the project.
- *Matplotlib.pyplot* and *Seaborn* is used for visualizing the cleaned and processed data to get the market segments to work on.

4. Segmentation Extraction

The segmentation extraction is done by cleaning the dataset and visualizing the data to get the useful insights about the market.

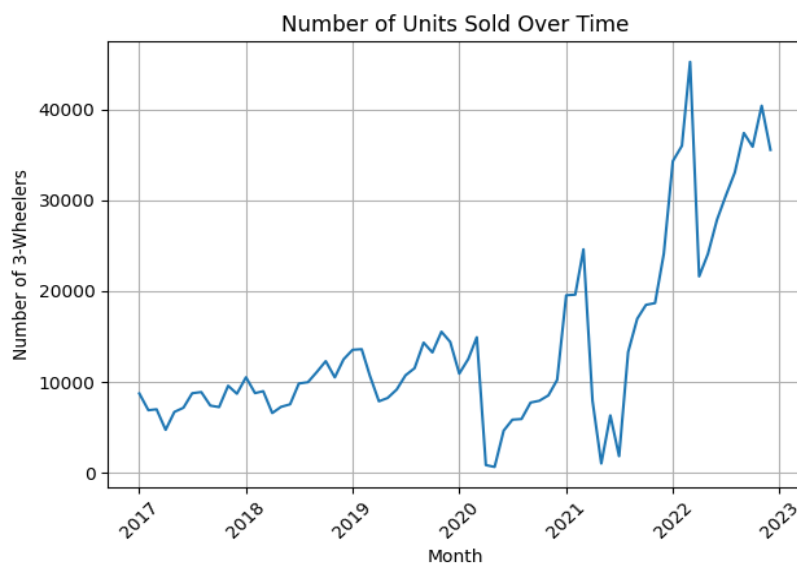
5. Profiling and Describing Potential Segments

5.1 3-Wheeler Analysis

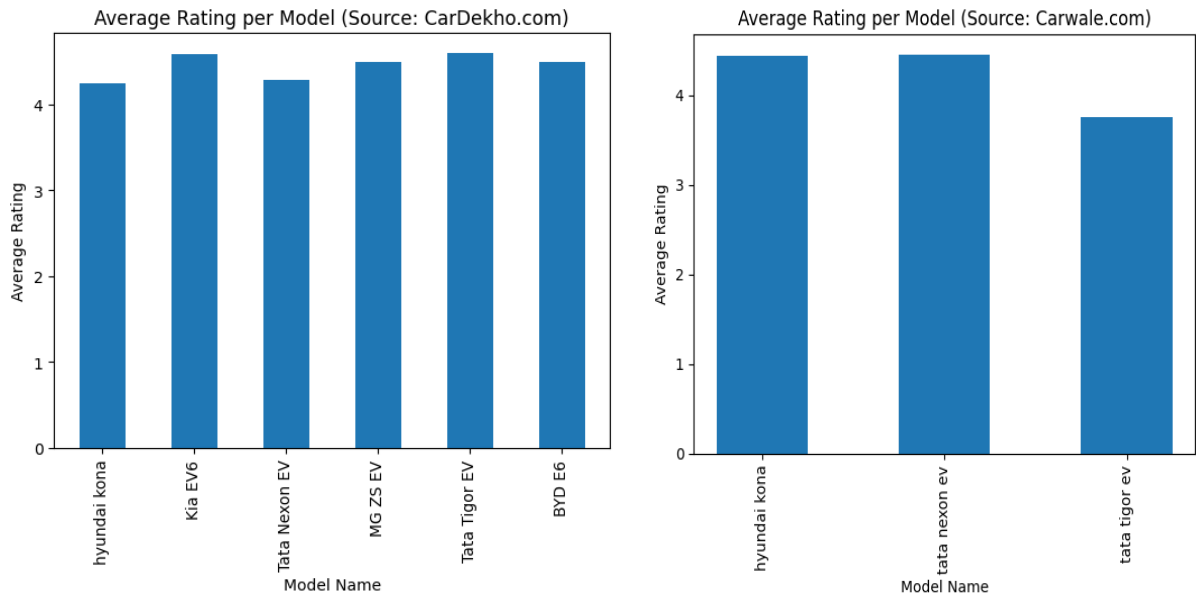


As it is inferred from the graph above that there is a peak of units sold in early 2022 and is retained again in the end of 2023 settling above 35000 units sold.

5.2 4-Wheeler Analysis

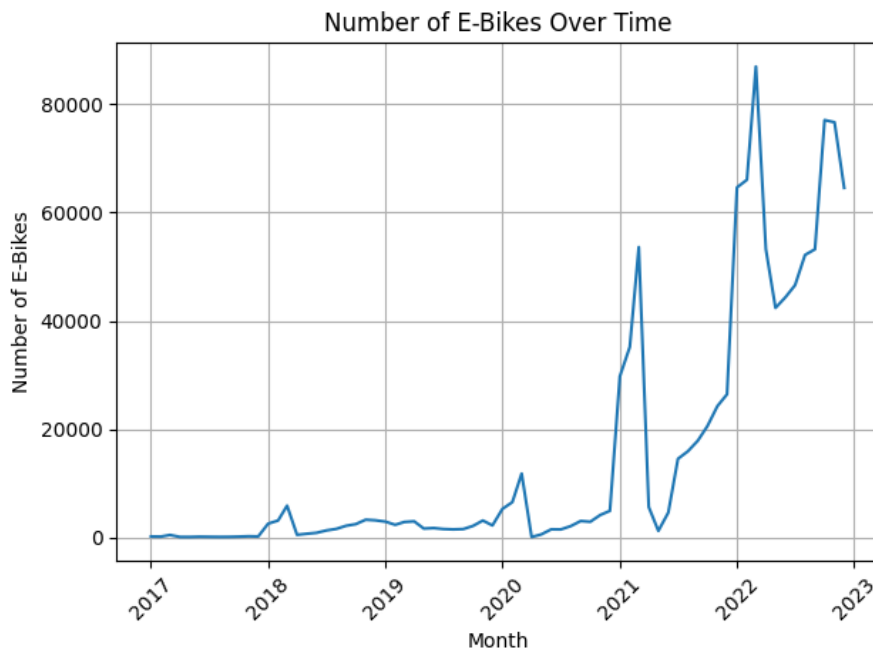


In the 4-wheelers analysis, it was found there was an unusual peak in early 2022 in the units sold and it declined immediately afterwards.

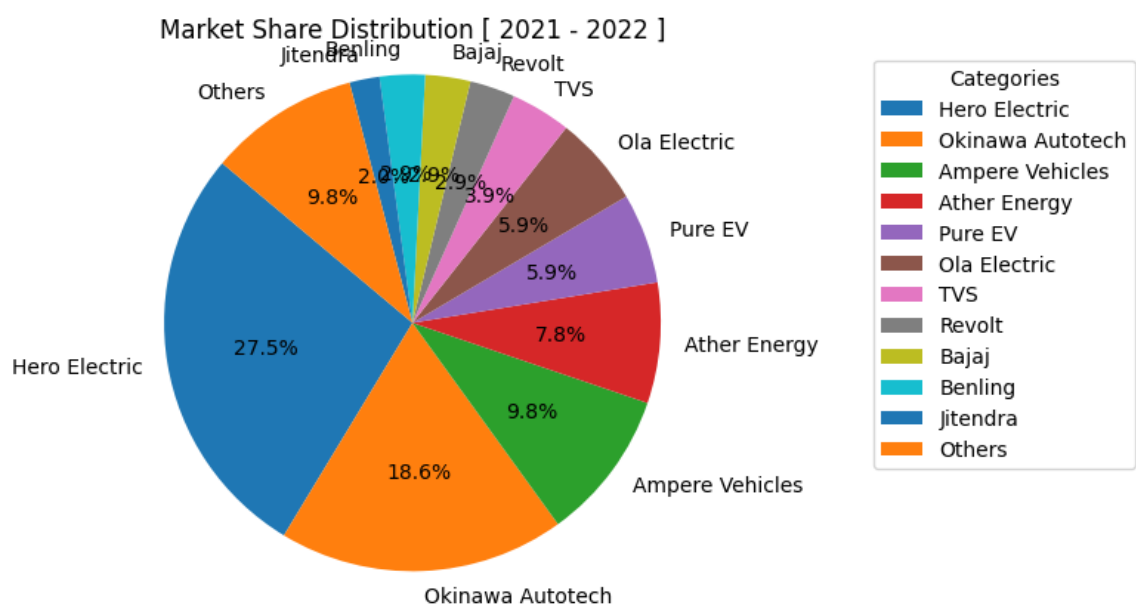
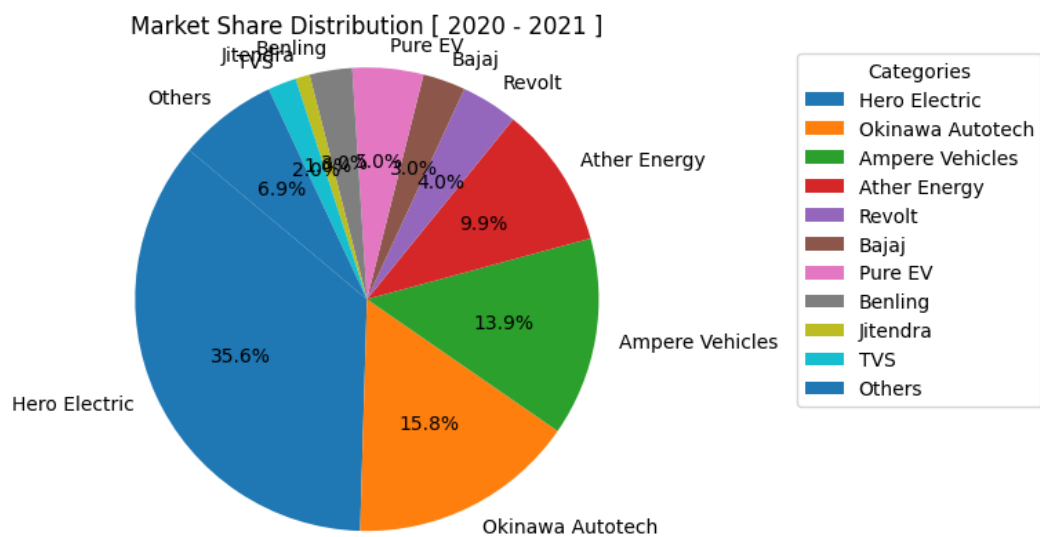
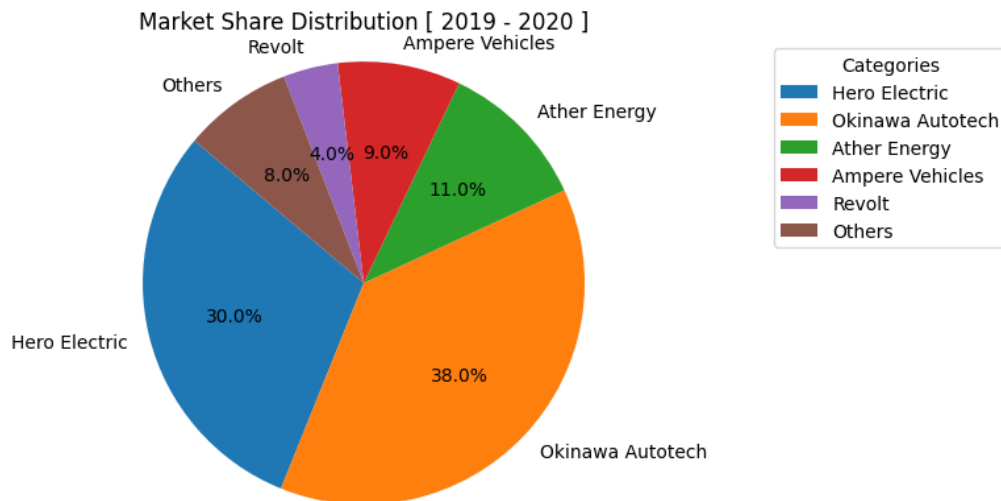


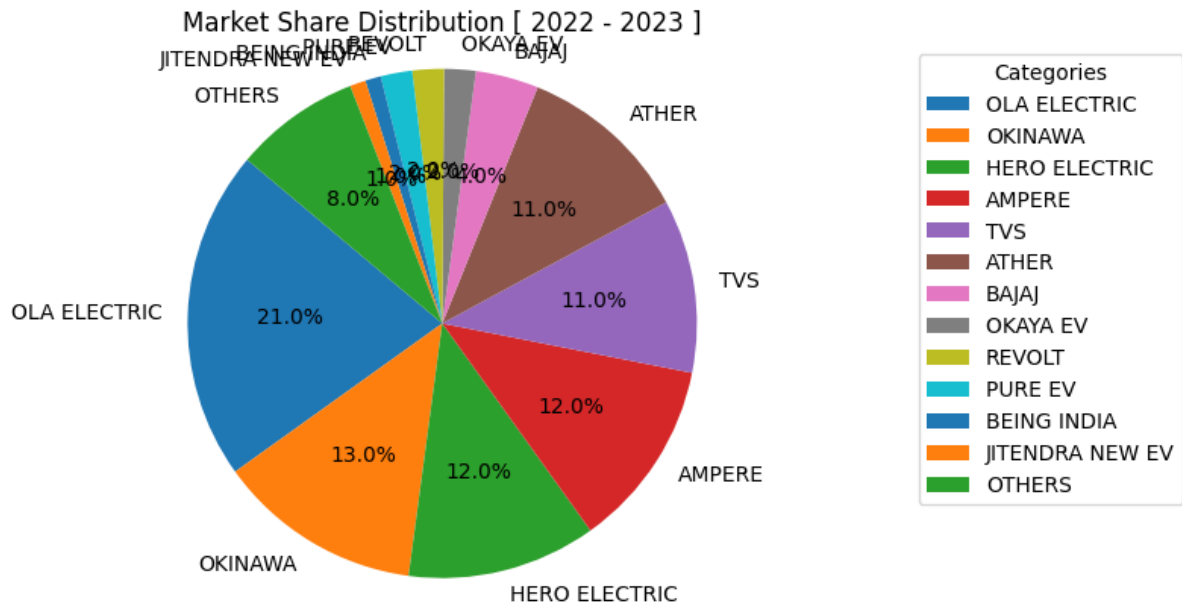
In this the existing EV 4-wheeler users rated their cars performance out of 5 and Kia EV6 was their best rated car. The source of this database was from CarDekho.com. And according to the Carwale.com the best car was Tata Nexon EV.

5.3 E-Bike Analysis

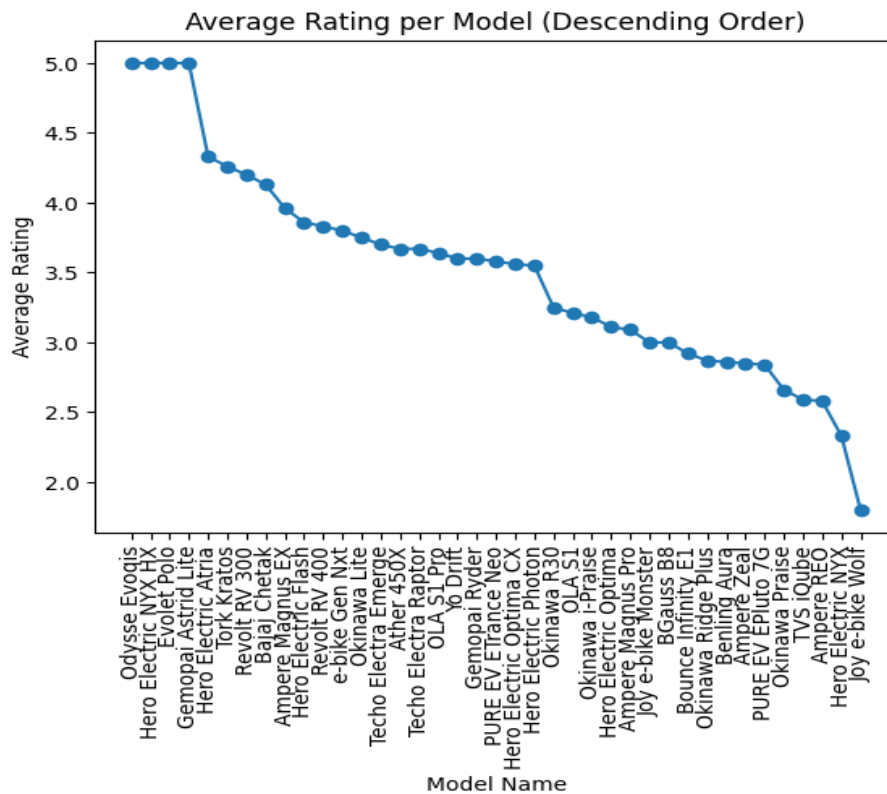


In the E-Bikes analysis, Units sold over years of 2017 – 2023 have sharp peaks at early 2021, 2022, and early 2023 too.



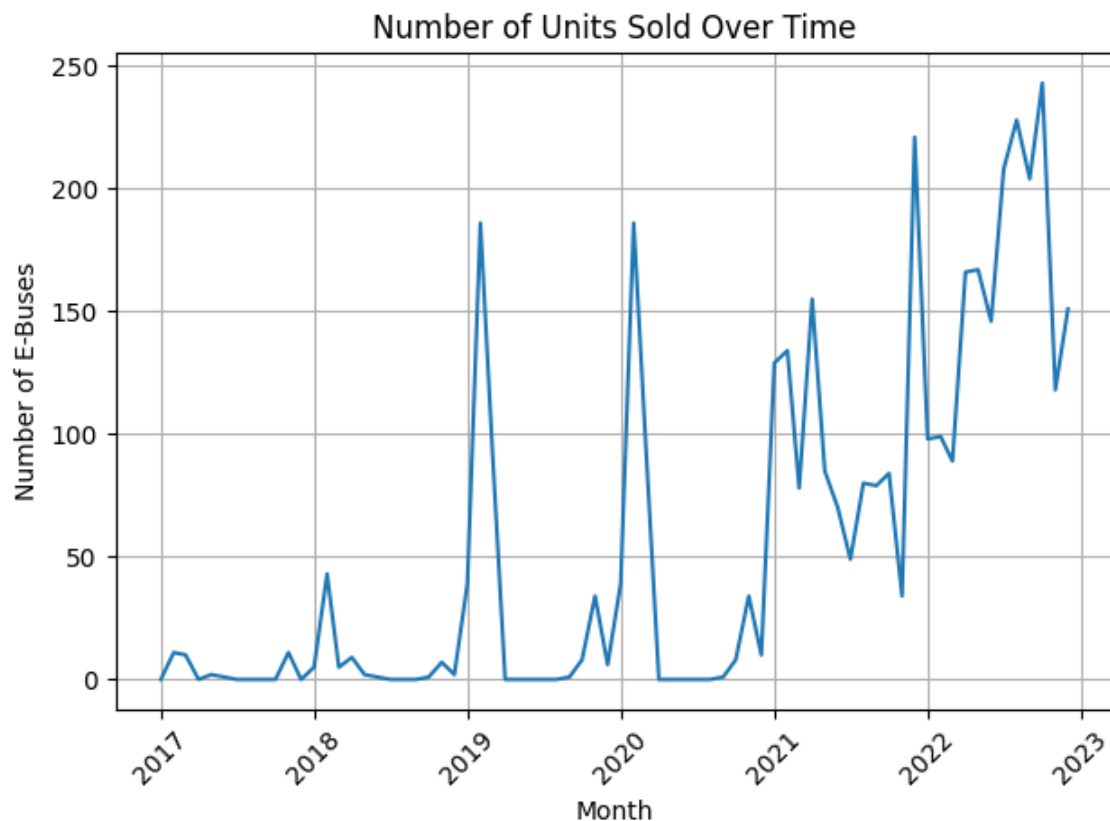


These Pie charts depicts the market share for every financial year for the 2017 – 2023. The most Market Share was with Hero Electric (2019-2022) but in 2022 – 2023 Ola Electric took the lead in market share of E-Bikes production.



The customers rating for the E-Bikes were visualised using matplotlib and found out Odysse Evoqis, Hero Electric NYX HX, Evolet Polo and Gemopai Astrid Lite were the most most rated 2-wheelers.

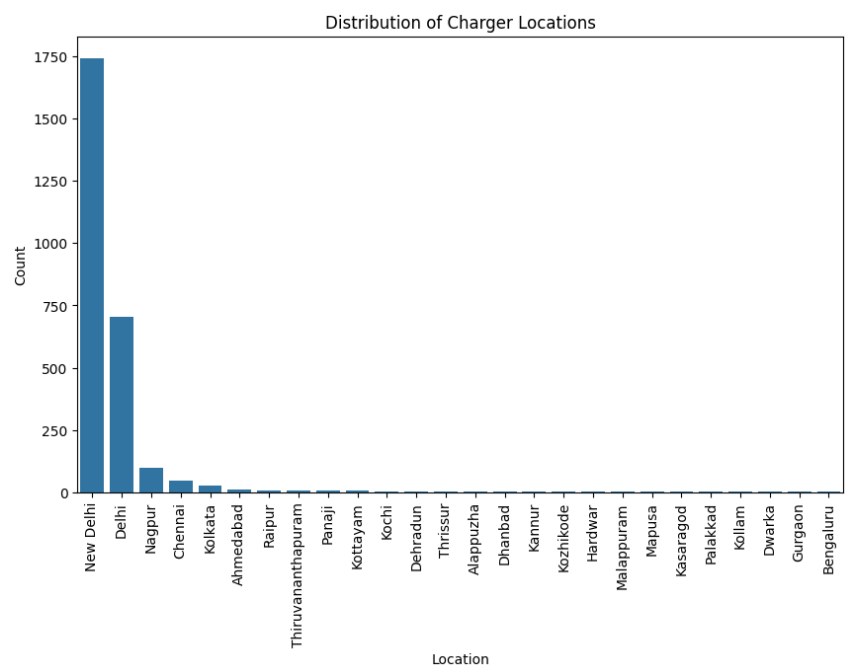
5.4 E-Bus Analysis



These are the Units of E-buses sold through 2017 – 2023 and the production data fluctuates through out the tenure and is pretty distributed around the years.

5.5 Electric Chargers Location Analysis

In this graph it is seen that the greatest number of charging stations are available in New Delhi and Delhi region, followed by Nagpur, Chennai and Kolkata.



6. Selection of target segment

CUSTOMER : According to the analysis, the ideal target audience should be a resident of Delhi Region due to availability of the charging infrastructure in Delhi and the best segment of production will be the market of E-Bikes due to their high demand followed by 4-Wheelers.

B2B : And there can be another faction for B2B for 3-Wheelers for companies involved in transport and logistic services but in small area of distribution cause the electric infrastructure is not developed yet in India.

And there is another experiment that is possible, since there is a gap in EV charging infrastructure, we could also start by production of Charging stations where people want to adopt EVs but can't due to the present unavailability of the proper infrastructure. By surveying the areas and short listing the perfect places to setup a charging station.

7. Conclusion

To conclude, The MOST OPTIMAL MARKET SEGMENTS to open in the market as per this Market Research and Segmentation will be the production of E-Bikes due to their high demand and still fight for the top spot in the market share of the EV sector.