ANALYSIS AND VISUALIZATION OF EV DATASET USING POWER BI

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Introduction

- EV Market Transformation
- Key Objectives of the Project
- Analytical Approach
- Significance of the Analysis

Problem statement

- List the top 3 and bottom 3 makers in terms of the number of 2-wheelers and 4-wheelers sold.
- Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales
- What are the quarterly trends based on sales volume for the top 5 EV makers (4-wheelers) from 2022 to 2024
- How are the EV sales and penetration rates in Delhi compare to Karnataka for 2024

About The Dataset

Dataset Description

Data Definition

dim_date

- date
- fiscal_year
- quarter

electric_vehicle_sales_by_makers

- date
- electric_vehicles_sold
- maker
- vehicle_category

Dynamic_date

- Dynamic_date

Data Definition

electric_vehicle_sales _by_state

- date
- electric_vehicles_sold
- state
- total_vehicles_sold
- vehicle_category

KeyMetric

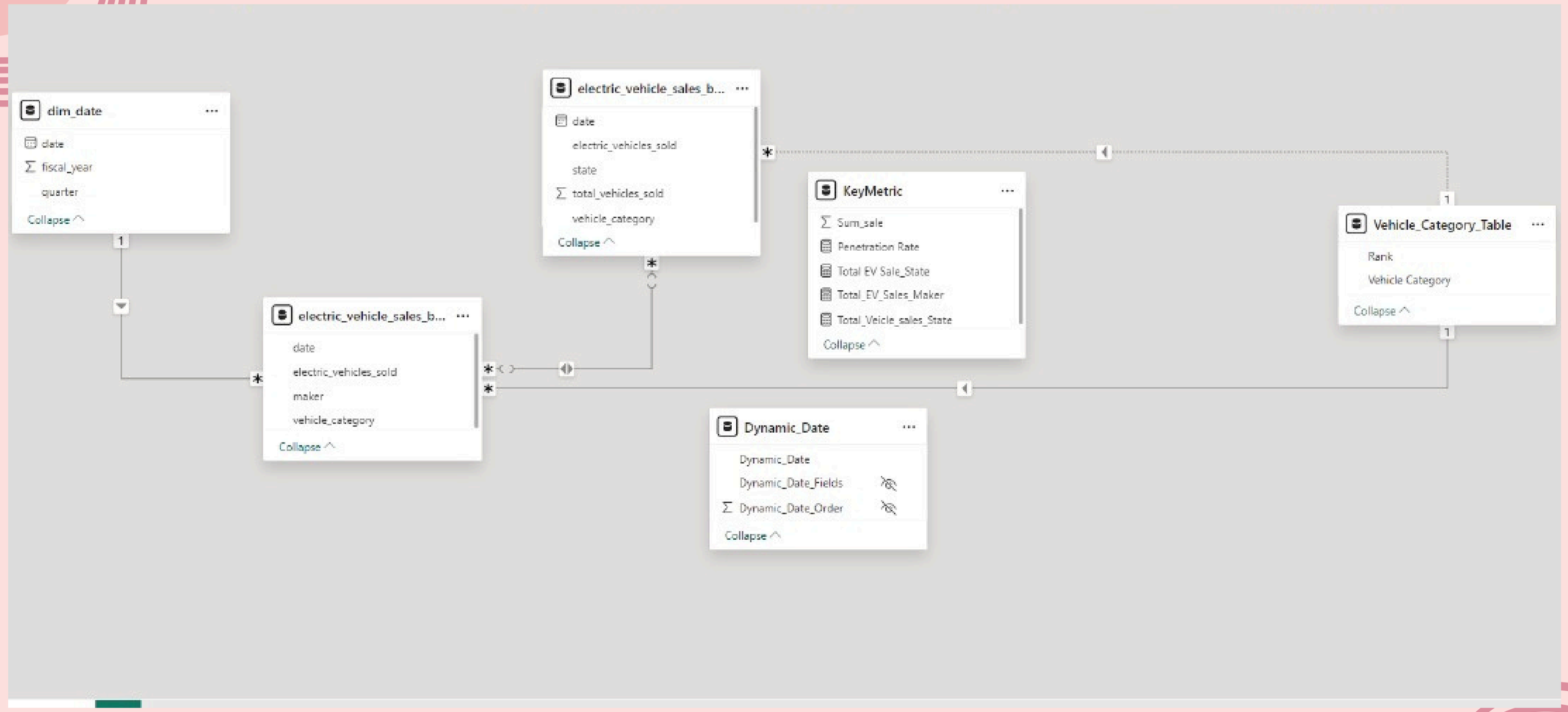
- penetration_rate
- sum_sales
- total EV Sale_state
- total EV sales_maker
- total_vehicle_sales_state

Vehicle _category_table

- Rank
- Vehicle Category

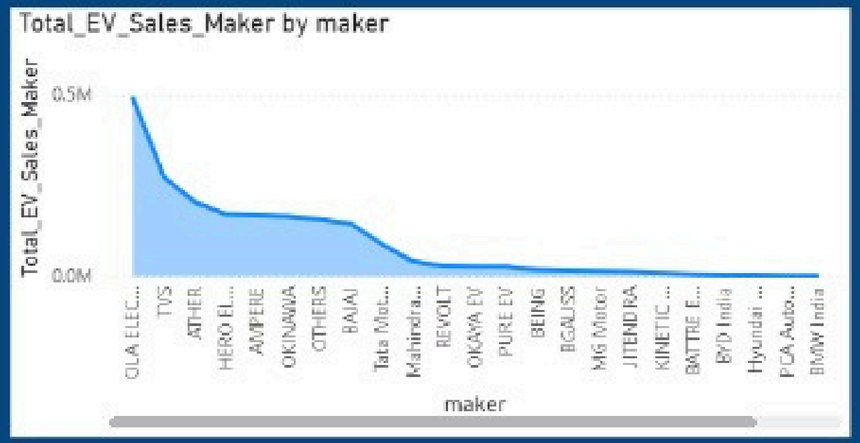
Steps to build the Dashboard

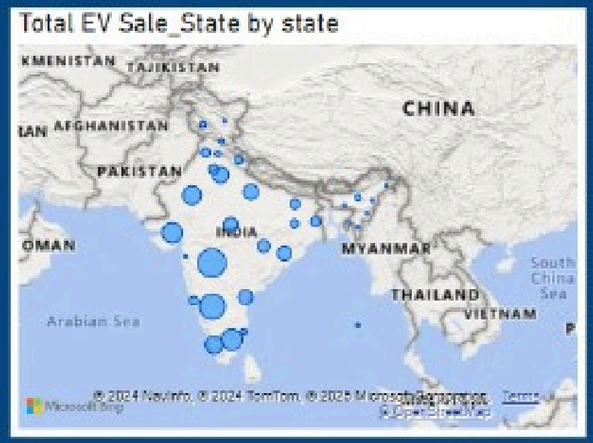
- Load data from CSV files into Power BI.
- Transformed the data and renamed the required column
- Establish relationships between tables using the Model View.
- Create the dashboard for the overview of the dataset
- Slicers, buttons,bookmark and selection
- Charts, graphs, and visualizations to showcase data insights.

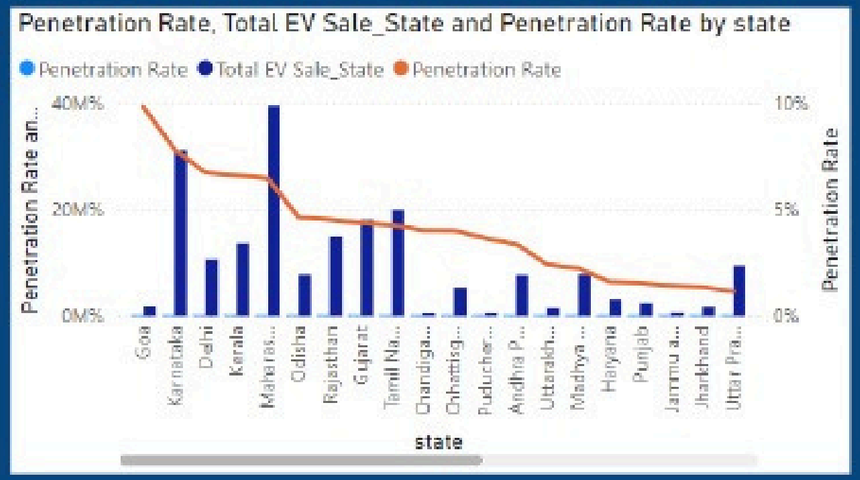

dim_date
date
fiscal_year
quarter
Collapse
1
electric_vehicle_sales_b...
date
electric_vehicles_sold
state
total_vehicles_sold
vehicle_category
Collapse
*
*
electric_vehicle_sales_b...
date
electric_vehicles_sold
maker
vehicle_category
Collapse
*
*
KeyMetric
Sum_sale
Penetration Rate
Total EV Sale_State
Total_EV_Sales_Maker
Total_Veicle_sales_State
Collapse
1
Vehicle_Category_Table
Rank
Vehicle Category
Collapse
1
Dynamic_Date
Dynamic_Date
Dynamic_Date_Fields
Dynamic_Date_Order
Collapse

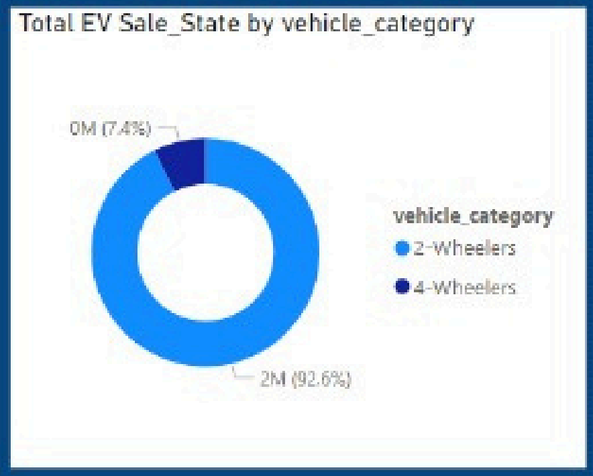
Dashboard Demonstration

Electric Vehicle







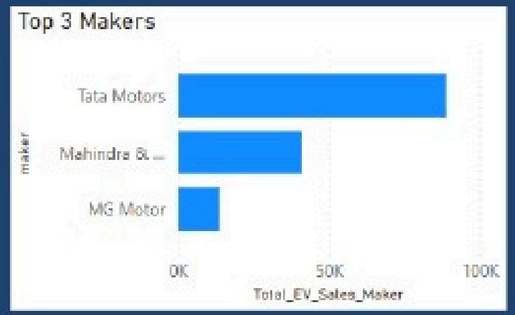


Electric Vehicle

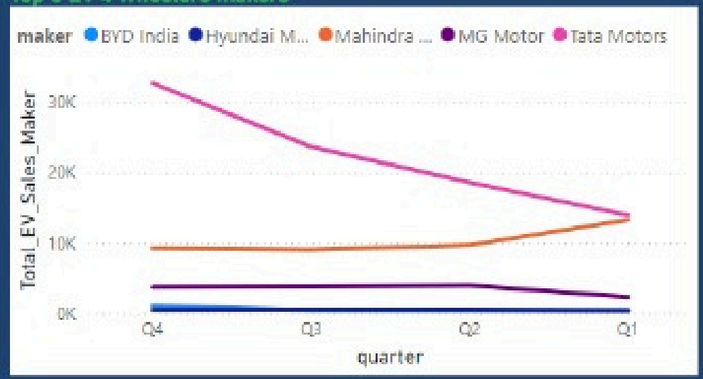
4-wheelers | 2-wheelers

EV Sold

Top 3 Makers

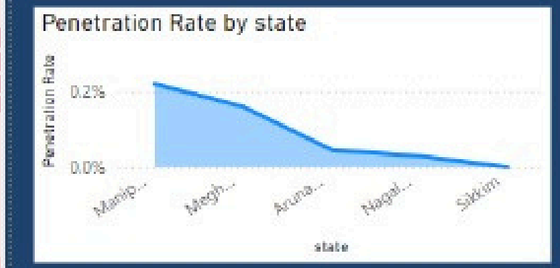


Top 5 EV 4 Wheelers makers



Penetration

Penetration Rate by state



Penetration Rate by state

Delhi VS Karnataka Penetration Rate 2024

state	Penetration Rate	Total EV Sale_State
Karnataka	7.84%	312995
Delhi	6.76%	107312
Total	**7.53%**	**420307**

Filters | Selection

Bookmarks

Add | View

- 4-Wheeler
- 2-Wheeler

Electric Vehicle
4-wheelers
2-wheelers
EV Sold
ttom 3 Makers
JITENDRA
KINETIC GREEN
BATTRE ELECT...
0K
10K
Total_EV_Sales_Maker
Top 3 Makers
OLA ELECTRIC
TVS
ATHER
maker
0.0M
0.5M
Total_EV_Sales_Maker
Top 5 EV 4 Wheelers makers
maker
BYD India
Hyundai M...
Mahindra ...
MG Motor
Tata Motors
Total_EV_Sales_Maker
30K
20K
10K
0K
Q4
Q3
Q2
Q1
quarter
Penetration
ttom 5 States
0.05%
0.00%
Meghalaya
Andaman...
Arunacha...
Nagaland
Sikkim
state
Top 5 States
10%
5%
Penetration Rate
Goa
Delhi
Kerala
Karnataka
Chandiga...
state
Delhi VS Karnataka Penetration Rate 2024
state
Penetration Rate
Total EV Sale_State
Karnataka
7.84%
312995
Delhi
6.76%
107312
Total
7.53%
420307
Filters
Selection
Bookmarks
Add
View
4-Wheeler
2-Wheeler

Key Finding

- **Market Dominance:** "Maker Ola electronics dominates the 2-wheeler EV market while Maker Tata Motors leads in 4-wheelers."
- **Regional Variation:** "States Delhi, Goa, Chandigarh have the highest EV penetration rates, likely due to government incentives and charging infrastructure."
- **Growth Trends:** "4-wheeler EV sales show a strong upward trend, with Maker experiencing the most significant growth in Q4 2023.
- **State Comparison:** "Karnataka has a significantly higher EV penetration rate than Delhi in 2024.

Conclusion

1. **Comprehensive Analysis**: Power BI enabled deep exploration of EV sales, manufacturers, and regional penetration.
2. **Interactive Dashboards:** Dynamic visualizations provided clear insights into trends and comparisons.
3. **Data Integration:** Seamlessly combined datasets for a holistic view of EV market dynamics.
4. **Trend and Pattern Discovery:**Revealed sales patterns, regional differences, and market shifts effectively.
5. **Strategic Decision Support:** Power BI’s capabilities supported data-driven decisions to boost EV adoption and growth.

THANK YOU