ISOM3330 Project –Global Electric Vehicle Development Analysis

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Project Overview

This project aims to provide a comprehensive and interactive analysis of the development of electric vehicle (EV) markets across different countries using Tableau. With data sourced from the International Energy Agency (IEA) Global EV Data 2024, the dashboard visualises trends in EV sales, market composition by powertrain type, and adoption rates over time. Through the use of dynamic parameters, filtering options, and forecasting tools, the visualisation enables users to explore key insights across regions and years. The primary goal is to assist policymakers, industry stakeholders, and researchers in understanding the pace and pattern of EV adoption globally.

Motivation & Dataset Understanding

The global shift towards sustainable transportation has placed electric vehicles at the forefront of climate-conscious policy and innovation. As various countries adopt strategies to promote EVs, it becomes increasingly important to understand the rate and nature of this adoption across different regions. This project is driven by the intention to visualise the global EV landscape and provide meaningful insights through data. The analysis is based on the IEA Global EV Data 2024, which offers a wide range of variables including annual EV sales, market shares of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), EV stock counts, and charging infrastructure data. Spanning data from 2010 to 2023 and covering over 50 countries, the dataset enables a multi-dimensional exploration of EV trends over time. Key fields include Region, Year, Powertrain Type, and Unit for categorical analysis, and quantitative measures such as Value, EV Share Percentage, and Sales Volume.

Dashboard Architecture & Feature Logic

The dashboard consists of three main visualizations: a line chart showing EV sales over time, another line chart focusing on BEV or PHEV trends based on user selection, and a pie chart illustrating powertrain share in a chosen year. Filters allow users to select countries, EV types, or years, which dynamically update the visuals. Forecast lines indicate future trends in EV sales, while calculated fields and parameters improve interactivity and analytical depth. This structured layout offers a clean narrative from macro trends to detailed insights.

User Insight & Application Scenarios

The primary objective of this dashboard is to empower policymakers, industry analysts, and sustainability researchers with a comprehensive tool for examining the trajectory of electric

vehicle adoption. By presenting historical patterns alongside regional breakdowns, users can evaluate market maturity, identify leading or lagging regions, and correlate infrastructure development with EV growth. The country filter enables comparative analysis across nations, supporting policy benchmarking and investment planning in clean transport initiatives.

The inclusion of a parameter switch between BEV and PHEV enhances analytical flexibility. It allows users to distinguish between battery-only and hybrid models, providing insight into consumer preferences, technological adoption, and national energy strategies. Furthermore, the Year filter tied to the pie chart permits year-specific cross-sectional analyses, enabling stakeholders to monitor market diversification and assess shifts in powertrain dominance over time.

In practical application, government agencies may use the dashboard to assess whether EV incentives are yielding measurable results in vehicle sales or shifts in powertrain preference. Automotive manufacturers and energy planners can leverage this data to forecast demand, align production strategies, and prepare for infrastructure scaling

Conclusion

In conclusion, this project successfully delivers an interactive and insightful Tableau dashboard that visualizes the evolution of electric vehicle adoption globally. Through thoughtful integration of filters, parameters, and diverse chart types, it enables users to uncover trends, compare regions, and understand the composition of EV markets over time.