Electrifying Insights: Visualizing Tesla's Performance

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TESLA | TABLEAU PUBLIC

Motivation

- The purpose of this project is to explore Tesla's performance through visualizing its historical data.
- The motivation behind this project is to understand whether Tesla is a profitable company to invest in and to create user-friendly dashboards for those interested in purchasing a Tesla car.

Data | 2014 – 2022

- Tesla's quarterly financial reports
- Statista.com
- Google Finance
- The US dept of Energy
- InsideEVs report
- Global Passenger EV market report

>>> All data was manually extracted from reports and formatted for use.

The data covers the production and deliveries of different vehicle models yearly and quarterly, yearly revenue, yearly net income, the stock price, the top 5 EVs of market share in the US, and location of the EV charging stations in US.

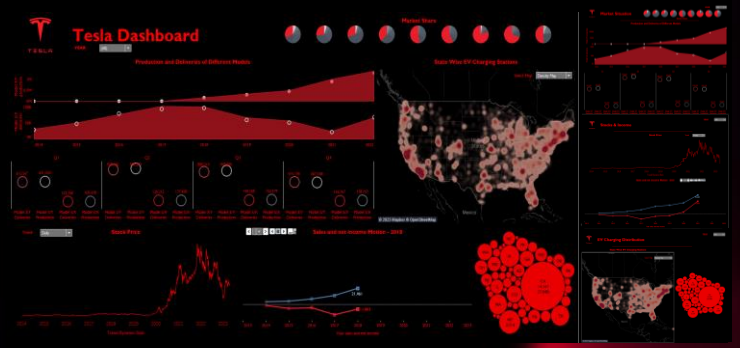
Features

Action: Selected State
Parameters: Animation Control, Select Map, Trend dynamic
Main buttons: Year filter, Map filter, Time unit filter, Loop Play
Calculations: Aggregation, sum, count

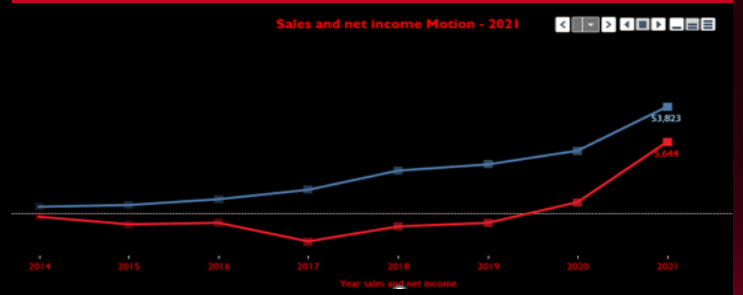
Dashboards

Four dashboards and seven charts in total, including an all-in-one dashboard.

The dashboards focus on three part of Tesla's performance, including **market situation**, **the Stocks and Net Income**, and **distribution of electric vehicle charging stations**.



Key Visualizations | Motion Line Chart

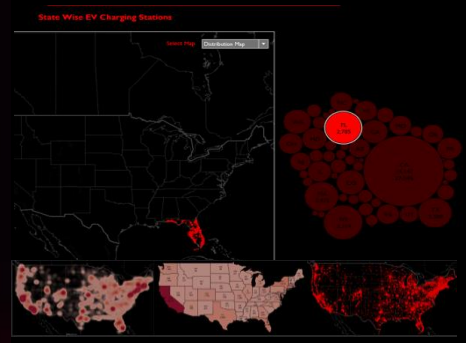


Features
- Sum up yearly net income and sales to create an **animation** of the chart
- Enables easy visualization of trends over time
- Works with **action feature** on dashboard, allowing filtering by year.
- Animation Control Parameter|Data type: integer|Allowable values: Range of values

Result
- Net income in 2017 was the lowest year up that point.
- Increased significantly over the year, started to rise steadily after 2017.
- Tesla is profitable and has been rising steadily recently.

Business Decision & Recommendation
- Investors consider Tesla as a potential investment opportunity due to it strong financial performance and growth potential.

Visualizations | Maps & Bubble

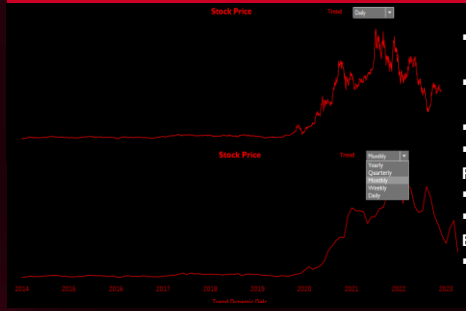


- Used **select map parameter** to intersperse and list together three maps: Density, filled, distribution map.
- Embed 3 maps into an activity area and display them in the dashboard through a drop-down filter.
- **Bubble chart is interactive with each maps** and click bubble to view corresponding state in map as a filter.
- Works with **action feature** on dashboard, allowing filtering by year.
- Select Map| Data type: Strig | Allowable values: list for 3 maps

Result:
- California, Texas, Florida, and New York has the highest number of EV charging.
- Montana, North Dakota, Wyoming, and South Dakota has the lowest number of EV charging.
- EV charging stations are concentrated on the east and west coasts. Relatively few charging stations in central and Northern or southern regions.
- Most central regions concentrated around major cities near Chicago and Denver.

Business Decision & Recommendation:
- Informed decision on expansion priority areas for investors interested in electric vehicle network.
- Consider improving the charging station network in central regions

Visualizations | Maps & Bubble



- Display the trend of Tesla's stock price over time using a line chart with **dynamic calculation field** and **parameter** for different time units, such as yearly, quarterly, monthly, weekly, daily.
- Users can select the time unit through a drop-down box filter, and also use another year filter to drill down the detail of specific years. Ithelps stakeholders to understand Tesla's performance and development trends.
- Cal: trend dynamic dalc - DATE(DATETRUNC([Trend],[Date]))
- Parameter: Trend | Data type: String | Allowable values: List for time unit.

Results:
- Tesla's stock price started to rise steadily after 2020.
- The highest point of the stock price was reached on November 4, 2021, with a closing price of $410.

Business Decision & Recommendation:
- Stakeholders can make informed investment decisions by considering Tesla's stock price trend over time.

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What went well?
- Collecting most data sources was relatively smooth.
- Making Tableau Dashboard was relatively smooth.
- Combining features in sheet was relatively smooth.

What did not go well?
- Organizing data was challenging due to the lack of readily available databases.
- Clean and relevant data for a Tesla consumer satisfaction survey was difficult to find.
- The initial all-in-one dashboard was not effective for presenting key insights. So, it was divided into three parts according to topics, which required additional time and effort.

What went well?
- Start searching for relevant and reliable data sources early and also have alternative data sources.
- Use more powerful hardware to deal with large amounts of data.
- Consider alternative dashboard designs and layouts early in the project planning phase.