GLOBAL EV SALES REPORT

Uncovering Sales, Growth and Trends:
A complete Global EV Sales analysis.

IDEMIA × लोक भारती

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AS PROJECT ONE

Acknowledgement

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Furthermore, I want to acknowledge that this project was completed solely by me, and no external assistance was involved in its execution.

SIGNATURE OF PROJECT GUIDE

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Project Description

Today's fast-paced corporate world requires market understanding. This research seeks to provide an in-depth analysis of the EV Market and examines key areas of interest such as electric vehicle and charging infrastructure deployment, battery demand, electricity consumption, and oil displacement,.

Baic Introduction

The GLOBAL EV SALES dashboard is a comprehensive analysis combining historical data with projections up to 2030. It examines various critical aspects of the electric vehicle (EV) market, including the deployment of EVs and charging infrastructure, battery demand, electricity consumption, oil displacement. The report provides insights derived from leading markets to inform policymakers and stakeholders about effective policy frameworks and market systems for facilitating EV adoption. Additionally, this edition includes an analysis of the financial performance of EV-related companies, venture capital investments in EV-related technologies, and the global trade of electric vehicles.

POWER BI Dashboard

The GLOBAL EV SALES dashboard is built on the POWER BI platform, leveraging its capabilities for data visualization, analysis, and interactivity. Power BI enables users to explore data trends, insights, and correlations through intuitive and visually appealing dashboards.

Colors

Background Gradient: The dashboard utilizes a background gradient called '*Moonlit Asteroid*', achieved through hex color codes *#0F2027, #203A43,* and *#2C5364*. This gradient creates a visually appealing backdrop that enhances the overall aesthetics of the dashboard.

Visuals and Charts: *Dodger Blue (#38b6ff)* is used for all visuals and charts, ensuring consistency and enhancing readability. This color choice also adds vibrancy to the dashboard, making it visually engaging.

Text: All text elements in the dashboard are presented in *White (#ffffff)*, ensuring clarity and contrast against the background gradient. This color scheme enhances readability and ensures that important information is easily accessible to users.

Problem Statement

This section will outline the problem lies in the market for EV that this project is aiming to solve based on the information provided.

The rapid growth of the Electric Vehicle (EV) market presents stakeholders with both opportunities and challenges. As consumer preferences shift towards more sustainable transportation options, the demand for EVs is on the rise. However, understanding and navigating this evolving landscape can be complex and daunting for industry players, policymakers, and investors alike.

One of the primary challenges faced by stakeholders is the need to grasp the intricate nuances of the EV market. With various factors influencing consumer behavior, including techno-logical advancements, government incentives, and environmental concerns.

In light of these challenges, there is a pressing need for a solution that provides stakeholders with actionable insights into the EV market. By leveraging advanced analytics and visualization tools, such a solution can offer a clear and comprehensive overview of market trends, enabling stakeholders to make informed decisions and capitalize on opportunities in the rapidly evolving EV landscape.

#	Questions
1.	Which Country has the highest overall sales in this industry?
2.	How is the year-wise sales in this industry?
3.	How is the ratio of growth of 'Low Duty Vehicles' over 'Heavy Duty Vehicles' in this industry?
4.	Ratio of the market of Battery Electric Vehicle is growing over plug-in hybrid electric vehicle.
5.	How many Charging Points are there in services in this industry?
6.	How likely are you to recommend a brand in this industry?
7.	How important are factors such as region, vehicle type and units in the sales growth?

Aim of the Project

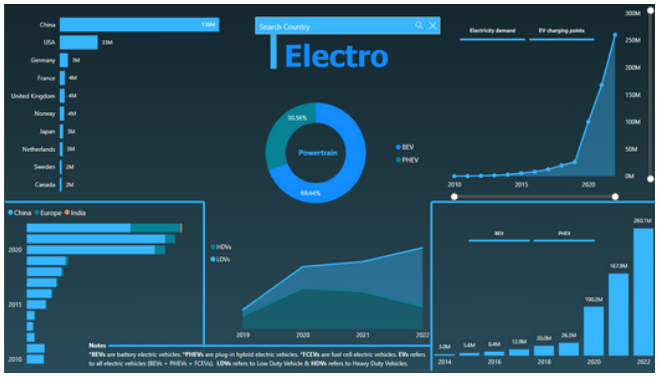
This section will outline what the project aims.

The GLOBAL EV SALES dashboard project aims to provide a comprehensive and insightful analysis of the Electric Vehicle (EV) market worldwide. With the growing importance of sustainable transportation solutions, understanding the dynamics of the EV market has become increasingly crucial for stakeholders ranging from manufacturers and policymakers to investors and consumers. Thus, the primary aim of this project is to address the need for a centralized platform that offers data-driven insights into EV sales, adoption rates, and market trends.

By consolidating relevant datasets and leveraging powerful visualization tools like Power BI, the aim is to create a user-friendly dashboard that presents complex information clearly and intuitively. Through interactive charts, graphs, and maps, users can explore key metrics such as EV sales volumes, market share by manufacturer, and geographical distribution of EV adoption. This aims to empower stakeholders with the knowledge needed to make informed decisions, whether it be for strategic planning, investment opportunities, or policy formulation.

Furthermore, the aim of the project extends beyond mere data presentation to providing actionable insights and trends analysis. By identifying patterns and correlations within the data, the dashboard aims to uncover underlying factors driving the growth of the EV market, such as government policies, technological advancements, and consumer preferences. This deeper understanding enables stakeholders to anticipate future developments and adapt their strategies accordingly, thereby staying competitive in an evolving market landscape.

In summary, the GLOBAL EV SALES dashboard project aims to serve as a valuable resource for stakeholders seeking to understand and navigate the complexities of the EV market. By offering a holistic view of sales trends, market dynamics, and influencing factors, the aim is to empower users with the knowledge needed to capitalize on opportunities and contribute to the ongoing transition towards sustainable transportation solutions.



Insight Page

Interactive Page

Requirement analysis

This section will outline various requirements required to complete the project such as softwares, hardwares and other tools

Software

- Power BI: Power BI is a business analytics tool by Microsoft that allows users to visualize and analyze data from various sources. It offers a range of features such as interactive dashboards, data connectors, and advanced analytics capabilities. Power BI is essential for creating the GLOBAL EV SALES dashboard as it provides the necessary tools for data visualization and analysis.
- MS Word: Microsoft Word is a word processing software that can be used for documentation purposes. While not directly involved in the creation of the dashboard itself, MS Word may be used for writing project reports, documenting requirements, and communicating findings. It ensures proper documentation and communication throughout the project lifecycle.

Hardware

- PC with a minimum of 4 GB of RAM: Power BI is a resource-intensive application, especially when dealing with large datasets and complex visualizations. Therefore, a PC with a minimum of 4 GB of RAM is recommended to run the required software smoothly. This ensures that the dashboard creation process is efficient and does not suffer from performance issues due to insufficient hardware resources.
- Well-working network connection: A stable and well-working network connection is crucial for accessing data sources, downloading updates, and sharing the dashboard with stakeholders. Since Power BI often relies on online data sources and cloud-based services, a reliable network connection ensures seamless connectivity and data access throughout the dashboard development process. Overall, the combination of Power BI for data visualization and analysis, along with MS Word for documentation, and a PC with sufficient RAM and a reliable network connection forms the essential software and hardware requirements for creating the GLOBAL EV SALES dashboard. These tools enable the efficient development, documentation, and sharing of the dashboard to meet project objectives effectively.

Dataset Sources

This section will outline various requirements required to complete the project such as softwares, hardwares and other tools

The dataset used in the GLOBAL EV SALES dashboard was obtained from the International Energy Agency (IEA), a reputable organization that examines various energy issues worldwide. The specific dataset used for this dashboard is the Global EV Outlook 2023, available on the IEA's official website.

Find Dataset : https://www.iea.org/data-and-statistics/data-product/global-ev-outlook-2023#global-ev-data
or click Here

Explaination

The IEA provides comprehensive data and statistics related to energy, covering a wide range of topics such as oil, gas, coal, renewable energy technologies, electricity markets, energy efficiency, and access to energy. The Global EV Outlook is a valuable resource for understanding trends and developments in the electric vehicle market.
The dataset downloaded from the IEA is in CSV (Comma-Separated Values) format and consists of 8 columns, organized as follows:

1. Region: Indicates the geographical region for which the data is recorded.
2. Category: Describes the category or type of data (e.g., sales, market share).
3. Parameter: Specifies the specific parameter or metric being measured (e.g., sales volume, market share percentage).
4. Mode: Refers to the mode of transportation (e.g., passenger cars, commercial vehicles).
5. Powertrain: Indicates the type of powertrain technology used in the electric vehicles (e.g., battery electric, plug-in hybrid).
6. Year: Represents the year for which the data is recorded.
7. Unit: Specifies the unit of measurement for the data values (e.g., units, percentage).
8. Value: Contains the numerical value of the corresponding parameter for the given region, mode, powertrain, and year.

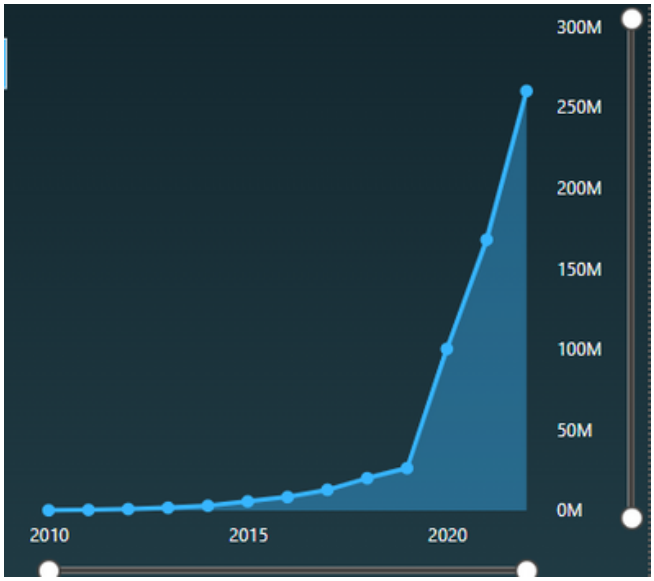
By utilizing this dataset, the dashboard is able to provide insights into various aspects of the electric vehicle market, including sales trends, market share analysis, and geographical distribution of EV adoption.

Insights

This section covers EV's industry size, growth, and trends. I evaluated data sources identified market leaders, analyzed their share, and explored industry drivers and obstacles in the competitive landscape.

Over 26 million electric cars were on the road in 2022, up 60% relative to 2021 and more than 5 times the stock in 2018

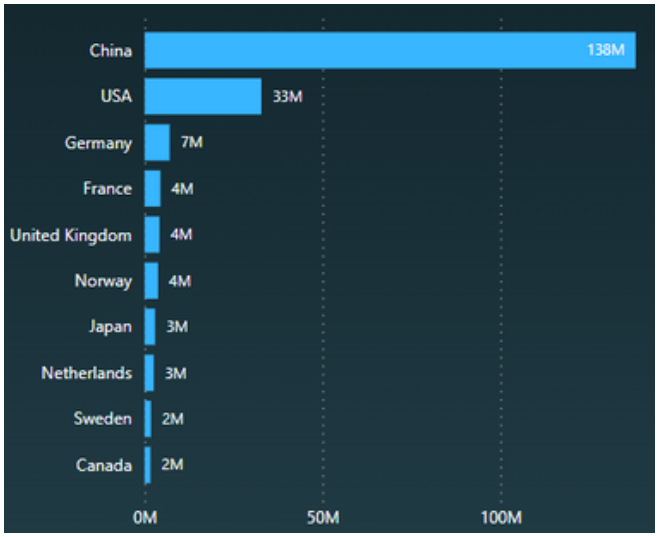
Increasing sales pushed the total number of electric cars on the world's roads to 26 million, up 60% relative to 2021, with BEVs accounting for over 70% of total annual growth, as in previous years. As a result, about 70% of the global stock of electric cars in 2022 were BEVs. The increase in sales from 2021 to 2022 was just as high as from 2020 to 2021 in absolute terms – up 3.5 million – but relative growth was lower (sales doubled from 2020 to 2021). The exceptional boom in 2021 may be explained by EV markets catching up in the wake of the coronavirus (Covid-19) pandemic. Seen in comparison to recent years, the annual growth rate for electric car sales in 2022 was similar to the average rate over 2015-2018, and the annual growth rate for the global stock of electric cars in 2022 was similar to that of 2021 and over the 2015-2018 period, showing a robust recovery of EV market expansion to pre-pandemic pace. the global stock of electric cars in 2022 was similar to that of 2021 and over the 2015-2018 period, showing a robust recovery of EV market expansion to pre-pandemic pace.



Annual Sales growth

Electric car sales continue to increase, led by China

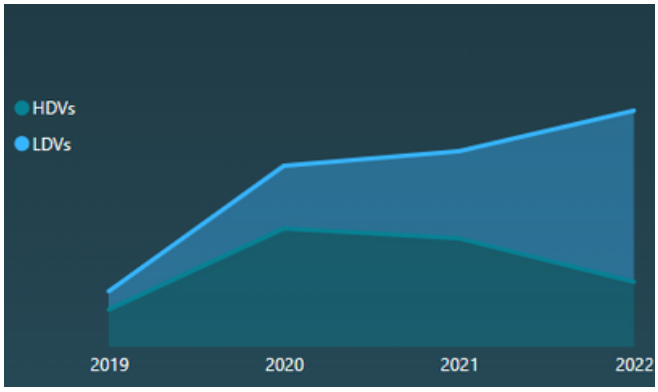
Electric car sales saw another record year in 2022, despite supply chain disruptions, macro-economic and geopolitical uncertainty, and high commodity and energy prices. The growth in electric car sales took place in the context of globally contracting car markets: total car sales in 2022 dipped by 3% relative to 2021. Electric car sales – including battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) – exceeded 10 million last year, up 55% relative to 2021. This figure – 10 million EV sales worldwide – exceeds the total number of cars sold across the entire European Union (about 9.5 million vehicles) and is nearly half of the total number of cars sold in China in 2022. In the course of just five years, from 2017 to 2022, EV sales jumped from around 1 million to more than 10 million. It previously took five years from 2012 to 2017 for EV sales to grow from 100 000 to 1 million, underscoring the exponential nature of EV sales growth. The share of electric cars in total car sales jumped from 9% in 2021 to 14% in 2022, more than 10 times their share in 2017.



Sales by region

The commercial vehicle stock is also seeing increasing electrification

Electric light commercial vehicle (LCV) sales worldwide increased by more than 90% in 2022 to more than 310 000 vehicles, even as overall LCV sales declined by nearly 15%. In 2022, nearly 66 000 electric buses and 60 000 medium- and heavy-duty trucks were sold worldwide, representing about 4.5% of all bus sales and 1.2% of truck sales. Where governments have committed to reduce emissions from public transport, such as in dense urban areas, electric bus sales reached even higher shares; in Finland, for example, electric bus sales accounted for over 65% in 2022.



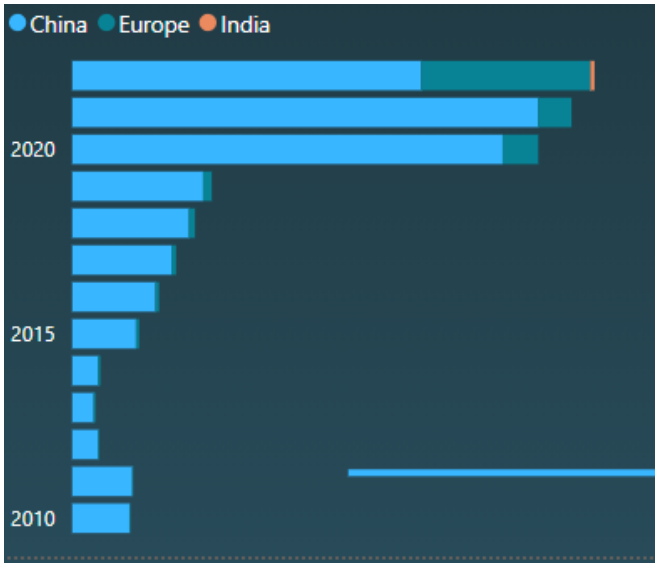
Comparative Growth of Heavy Duty Vehicle and Light Duty Vehicle

There are promising signs for emerging electric vehicle (EV) markets, albeit from a small base

Electric car sales are generally low outside the major markets, but 2022 was a growth year in India, Thailand and Indonesia. Collectively, sales of electric cars in these countries more than tripled compared to 2021, reaching 80 000. For Thailand, the share of electric cars in total sales came in at slightly over 3% in 2022, while both India and Indonesia averaged around 1.5% last year. In India, EV and component manufacturing is ramping up, supported by the government's USD 3.2 billion incentive programme that has attracted investments totalling USD 8.3 billion. Thailand and Indonesia are also strengthening their policy support schemes, potentially providing valuable experience for other emerging market economies seeking to foster EV adoption.

The EV supply chain is expanding, but manufacturing remains highly concentrated in certain regions, with China being the main player in battery and EV component trade.

In 2022, 35% of exported electric cars came from China, compared with 25% in 2021. Europe is China's largest trade partner for both electric cars and their batteries. In 2022, the share of electric cars manufactured in China and sold in the European market increased to 16%, up from about 11% in 2021.



Comparative sales of China , Europe and India

SWOT Analysis

This SWOT analysis provides a snapshot of the current state of the EV market. By understanding these strengths, weaknesses, opportunities, and threats, stakeholders can make informed decisions about investing in, developing, and adopting electric vehicles.

STRENGTHS

- Environmental benefits: EVs produce zero tailpipe emissions, contributing to cleaner air and reduced greenhouse gas emissions.
- Lower operating costs: Electricity generally costs less than gasoline, and EVs require less maintenance due to fewer moving parts.
- Technological advancements: Battery range, charging times, and performance are constantly improving, making EVs more appealing.
- Government support: Many governments offer incentives like tax breaks and subsidies to encourage EV adoption.
- Growing consumer demand: Public awareness and interest in EVs are on the rise, driven by environmental concerns and technological advancements.

WEAKNESSES

- High upfront cost: EVs are generally more expensive than comparable gasoline-powered vehicles.
- Limited range and charging infrastructure: Range anxiety and lack of readily available charging stations remain barriers to adoption.
- Battery technology limitations: Battery costs, performance, and recycling remain areas for improvement.
- Reliance on the electricity grid: The environmental impact of EVs depends on the source of electricity generation.
- Competition from traditional automakers: Established car companies are investing heavily in developing their own EVs.

OPPORTUNITIES

- Expansion of charging infrastructure: Government and private investment is accelerating the build-out of charging stations.
- Battery technology breakthroughs: Advances in battery technology can address range anxiety and cost concerns.
- Development of new vehicle segments: Expanding offerings beyond passenger cars (e.g., trucks, buses) can attract new buyers.
- Integration with renewable energy sources: Utilizing solar and wind power can further reduce the environmental impact of EVs.
- Subscription and car-sharing models: Flexible ownership options can make EVs more accessible to a wider audience.

THREATS

- Fluctuations in battery material prices: Lithium and other critical materials are susceptible to price swings, impacting EV costs.
- Economic downturns: Reduced consumer spending could affect EV sales.
- Government policy changes: Shifting government policies could remove incentives or impose restrictions on EVs.
- Competition from alternative technologies: Hydrogen fuel cell vehicles and autonomous vehicles could pose challenges.
- Environmental concerns about mining and battery disposal: Sustainable sourcing and recycling of battery materials are crucial.

Conclusion and Recommendations

In this section, I'll summarize my findings and provide recommendations to help the audience seize opportunities and overcome challenges.

The electric car market has experienced exponential growth, with global sales surpassing 10 million units in 2022. China remains the dominant market, accounting for 60% of global electric car sales, while Europe and the United States also saw significant increases in electric car sales. Sales are expected to continue growing strongly through 2023, with electric cars potentially accounting for 18% of total car sales by the end of the year. This growth is driven by national policies and incentives, as well as increasing consumer interest, especially amid rising oil prices. urthermore, emerging markets such as India, Thailand, and Indonesia show promising signs of growth in electric car sales, albeit from a smaller F base. These countries are ramping up EV manufacturing and implementing supportive policies to foster adoption.

Policy efforts and market trends in major car markets support a positive outlook for EV sales, with projections indicating that electric cars could account for 35% of total sales by 2030. The electrification of the transportation sector has significant implications for energy markets and climate goals, with electric vehicles expected to play a key role in reducing emissions.

Despite the growth in electric car adoption, challenges remain, including the need for affordable models, expansion of charging infrastructure, and sustainable battery supply chains. However, with increasing investments and policy support, the electric car market is poised for continued expansion and innovation.

#	Recommendations	
1	Increase Policy Support: Governments should continue to implement policies and incentives to encourage electric car adoption, including subsidies, tax incentives, and infrastructure development. Emulating successful models from leading markets like China and Europe can help spur growth in emerging markets.	HIGH
2	Promote Domestic Manufacturing: Governments should incentivize domestic manufacturing of electric vehicles and batteries to reduce dependence on imports and build resilient supply chains. Production-linked incentive schemes, as seen in India, can attract investments and foster the growth of a robust EV ecosystem.	MEDIUM
3	Invest in Research and Development: Continued investment in research and development is essential to drive innovation in electric vehicle technology, including advancements in battery technology, energy efficiency, and vehicle design. Collaboration between industry, academia, and government institutions can accelerate progress towards sustainable mobility solutions.	LOW
4	Expand Charging Infrastructure: Investments in charging infrastructure are crucial to alleviate range anxiety and facilitate widespread adoption of electric vehicles. Governments and private sector stakeholders should collaborate to accelerate the deployment of charging stations, especially in urban areas and along major transportation corridors.	HIGH

Future Scope

Based on the exponential growth witnessed in the electric car market, with sales surpassing 10 million in 2022 and accounting for 14% of all new car sales, the trajectory towards electrification is set to continue. By 2030, the following key quantitative numbers are projected:

35%

Global Electric Car Sales

Under the IEA Stated Policies Scenario (STEPS), the global outlook for the share of electric car sales is expected to reach 35% by 2030, up from less than 25% in previous projections. This translates to a significant increase in sales volume, with millions of electric cars expected to be sold annually.

5M

Oil Displacement and Emissions Reduction

The displacement of oil consumption by electric vehicles is expected to exceed 5 million barrels per day by 2030

40%

Market Share by Region

China is projected to retain its position as the largest market for electric cars, accounting for 40% of total sales by 2030 in the STEPS. The United States is expected to double its market share to 20%, driven by recent policy announcements driving demand. Europe is forecasted to maintain its current 25% share, indicating a balanced distribution of electric car sales across major regions.

425B

Investment and Competition

Global spending on electric cars is projected to exceed USD 425 billion by 2030, with investments predominantly driven by consumer demand rather than government support. The competitive landscape will continue to evolve, with a growing number of affordable models entering the market and investments in EV-related technologies reaching unprecedented levels.

In summary, the projected growth and dominance of electric vehicles by 2030 will have far-reaching implications across multiple sectors, including energy, transportation, manufacturing, and the environment. Proactive measures and collaborative efforts will be essential to maximize the benefits of this transition while addressing potential challenges and ensuring a sustainable and equitable future for all.