

BMW Global Sales Analysis (2010–2024): Regional Trends, Model Performance, and Market Insights

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December 4, 2025

I. Business Background

BMW is a leading global manufacturer in the premium automotive industry, with a strong presence across Europe, North America, and Asia. As a luxury brand, BMW's performance is shaped by economic cycles, evolving consumer preferences, competitive pressures, and shifts towards electric power. Due to the company operating in dynamic and regionally diverse markets, understanding sales trends is essential for evaluating market strength, forecasting demand, and identifying growth opportunities.

Between 2010 and 2024, the automotive industry experienced several economic disruptions including rising inflation, semiconductor shortages, the COVID-19 pandemic, and a major shift in consumer preferences towards electric vehicles. These events influenced regional performance across the years in different ways. Identifying these regional sales patterns and analyzing the cause of year-to-year fluctuations is important to see where BMW's demand is strongest, where vulnerabilities exist and how external market pressures shape long-term growth.

II. Identifying the Problems

BMW faces increasingly volatile markets around the world and the company faces needs to make data-driven strategic decisions about factors such as which regions to invest in, product positioning, and changing consumer trends, especially when it comes to electric mobility. Clear visualization-driven understanding of how consumer demand has been evolving since 2010-2024 would be very helpful, especially since this period has seen numerous economic disruptions, change in fuel preferences, and intensifying competition in the premium automobile industry.

The global strategy office needs a consolidated analysis to identify which markets offer the strongest long-term growth potential, which product segments are losing traction, and which markets will future investment in electric and hybrid vehicles generate the greatest return. To support BMW's strategic planning, it is necessary to uncover the underlying patterns that differentiate growth regions from declining ones, evaluate how external market pressures have shaped sales performance, and highlight the key drivers behind high- and low-performing BMW models.

III. Analysis Objectives

This report analyzes BMW's sales volume and pricing data to uncover meaningful patterns and insights across models and global regions. Our analysis objectives include:

- **Evaluating long-term sales trends** across global regions to identify regions with consistent growth, stagnation, or decline
- **Evaluate changes in fuel-type demand** by comparing petrol, diesel, hybrid, and electric sales over time

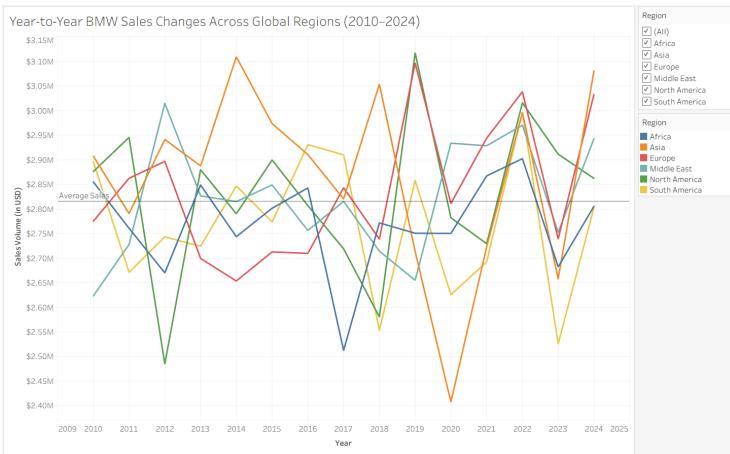
- **Analyzing regional demand patterns** to identify which global markets show the strongest growth potential for BMW's electric and hybrid models compared to traditional fuel-based vehicles.
- **Examining price sensitivity across model segments**, determining whether luxury models are less affected by price changes than mid-range models.
- **Differentiate high vs low sales classifications** by identifying the model attributes and factors that drive performance gaps
- **Compare sales patterns across BMW model families**, including the 3 Series, 5 Series, X Series, i Series, and others
- **Transforming raw sales data into clear, actionable visual insights** that inform decisions related to production planning, model strategy, market investment, and regional resource allocation.

This information is intended for upper management, financial analysts, marketing/sales teams, and product managers to support strategic decision-making, guide future market investments, and improve planning related to production, pricing, and regional growth opportunities.

IV. Data Analysis & Visualization Insights

Year-to-Year BMW Sales Changes Across Global Regions

This line chart highlights how BMW's sales have fluctuated across major global regions over the past 15 years. It also has a highlight feature in the workbook for clearer visibility for specific regions. A



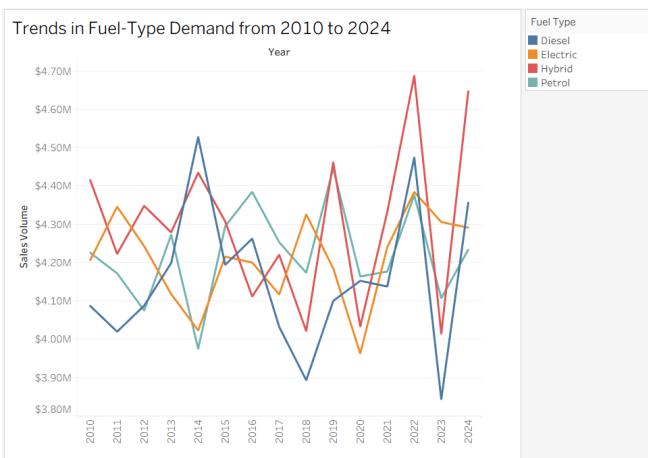
line chart was the most appropriate choice because it clearly illustrates how the data changes over time. While overall sales generally cluster around the long-term average of \$2.82 million, each region follows a distinct pattern shaped by local economic conditions, consumer preferences, and shifts in automotive demand. Asia consistently records the highest sales in many years over the period and demonstrates the strongest growth momentum, indicating sustained

long-term demand. BMW should continue prioritizing investments in this market, as well as other strong regions such as Europe and North America. In contrast, the visual shows that Africa and South America frequently fall below the global average and display greater volatility, reflecting higher sensitivity to economic disruption, price shifts, and resource constraints. Recognizing and understanding these

patterns is crucial to assist management in making targeted strategic decisions that maximize impact, strengthen profitability, and improve return on investment across BMW's global portfolio.

Trends in Fuel-Type Demand from 2010 to 2024

Below is a line graph showing Trends in Fuel-Type Demand from 2010 to 2024. In order to make the

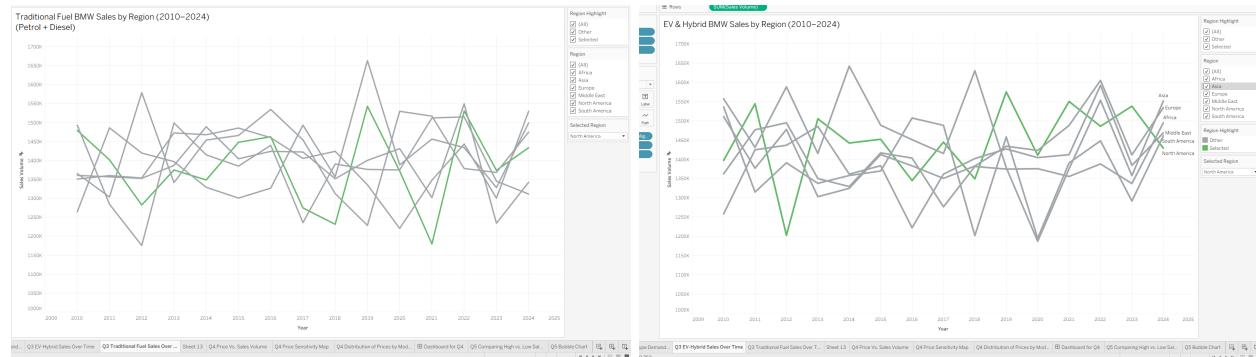


data more interpretable a color coding was added to Fuel Type to make each type more observable on the graph. In addition, a hover-to-highlight feature was added as well. It is important to observe a growing level in demand for Hybrid vehicles across time, having the largest total sales in 2022 as well as 2024. There is also a trend that following years of high sales demand experience large dips in total sales. This is due to lower demand caused by customer demand being fulfilled in the previous

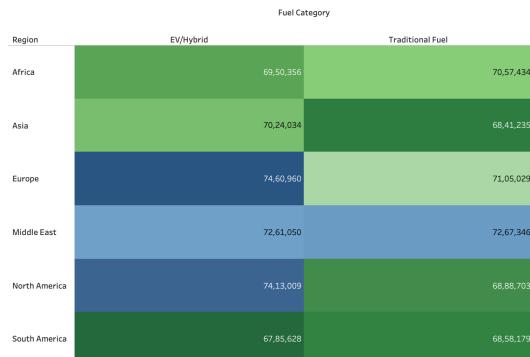
year. This information can help BMW to focus on what Fuel-types they should expand their lineup, such as hybrid vehicles.

EV/Hybrid Growth Potential Compared to Traditional Fuel Demand Across Global Regions

The EV/Hybrid sales trends show that Asia and Europe are the strongest growth markets, with clear upward momentum from 2010–2024. North America grows modestly, while Africa and South America show limited adoption.



Regional Demand Heatmap: EV/Hybrid vs Traditional Fuel (2020–2024)

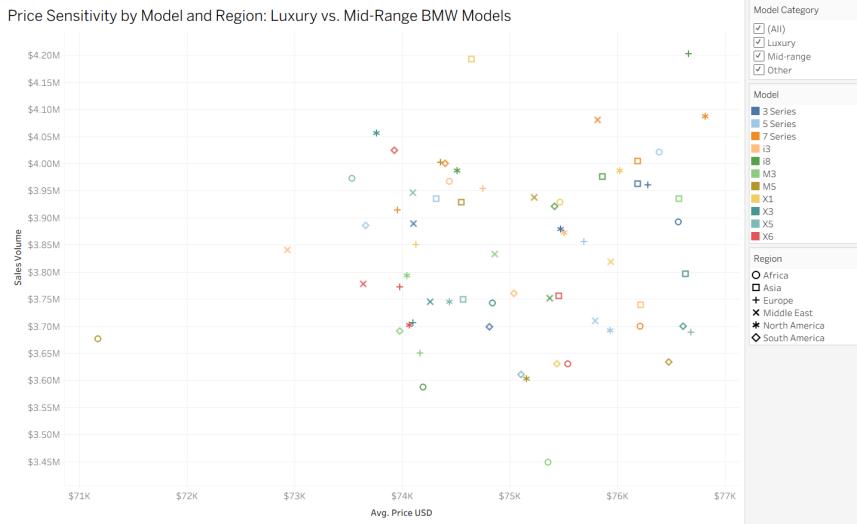


In contrast, traditional fuel sales are flattening or declining in Europe and North America, indicating a shift toward electrification, while Asia remains mixed but still strong.

The heatmap confirms that recent EV/Hybrid demand (2020–2024) is highest in Asia and Europe, whereas Africa

and South America remain dominated by traditional fuel. These patterns suggest that BMW's greatest EV growth opportunities lie in Asia and Europe, with other regions requiring slower, adaptive transition strategies.

Relationship Between BMW Price and Sales



This scatterplot shows how average price relates to sales volume for different BMW models across regions. Each point represents a specific model in a specific region, with colors showing the model (3 Series, X3, 7 Series, etc.) and shapes showing the region (Africa, Asia, Europe, and so on). Most of the points form a loose upward pattern, meaning that as price increases from about \$71K to

\$77K, sales volume generally stays strong and often even increases. This suggests that BMW customers, especially in the luxury and mid-range segments shown here, are still willing to buy higher-priced models.

BMW can use these insights to understand where it has pricing power. Since there isn't any strong drop in sales at higher prices, BMW can be more confident about maintaining or slightly increasing prices for models that sit in the upper-right area of the chart (higher price and higher sales volume). At the same time, models that are priced similarly but show lower sales volumes stand out as opportunities: they may need better marketing, feature upgrades, or more competitive pricing. Overall, this view helps BMW decide which models can support premium pricing and which ones may require more careful pricing and positioning to grow sales.

High vs Low Sales Classification

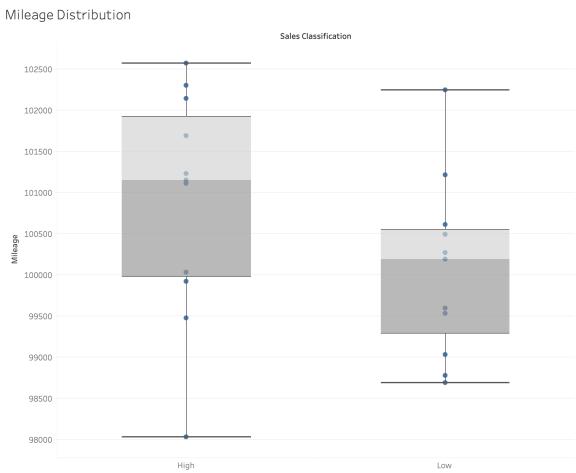
Comparing High vs. Low Sales Models Across Key Factors

Sales Classification	Transmission	Fuel Type	Avg. Engine Size L	Avg. Mileage KM	Avg. Price USD
High	Automatic	Diesel	3	102,445	74,834
		Electric	3	102,112	75,138
		Hybrid	3	100,133	75,133
		Petrol	3	101,954	74,468
	Manual	Diesel	3	99,876	75,371
		Electric	3	100,886	75,282
		Hybrid	3	101,226	73,741
		Petrol	3	98,474	75,789
Low	Automatic	Diesel	3	101,387	75,182
		Electric	3	101,122	75,146
		Hybrid	3	101,209	75,268
		Petrol	3	99,672	75,572
	Manual	Diesel	3	100,214	74,962
		Electric	3	99,069	75,465
		Hybrid	3	98,383	74,653
		Petrol	3	99,459	74,290

We used a crosstab to show the different factors that might influence high vs low sales. A crosstab was most suitable for this as it lists out the data in an easy to understand format. Additionally, we included features such as hierarchy on the rows, and filters to filter the data for different model types. From the data, we can tell that high sales models occur both in automatic and manual transmissions but automatic models have slightly better averages in terms of price and mileage. Automatic diesel vehicles stand out with slightly stronger mileage and competitive pricing and, overall, shows the clearest association with higher sales.

We also used box and whisker plots to visualise the distributions of sales classification with respect to price, engine size and mileage. We used a parameter to change the distribution based on

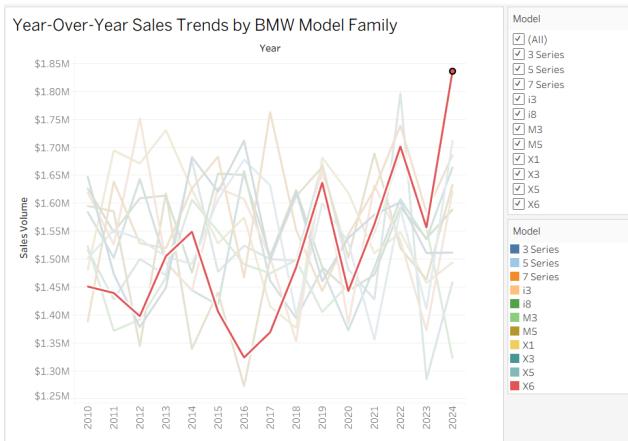
whether we want to see the data for price, engine size or mileage and added a report and axis title. Although the crosstab was a better visualisation since the distributions didn't seem to have any impactful insights, it helped us understand that price ranges for high and low sales models mostly overlap, indicating that price alone does not explain sales performance. Additionally, both groups show nearly identical engine sizes. Although there is one high-sales outlier with a larger engine, it is not representative of the overall trend.



Mileage distributions show that high sales models have both a higher median and a wider spread than low-sales models. This goes against the expected pattern and indicates that mileage does not explicitly relate to sales in this dataset.

While the crosstab highlights key features with respect to sale classification, the mileage box plot is valuable because it challenges our assumptions and shows that mileage is not a meaningful driver in this dataset even though one might think otherwise.

Year-Over-Year Sales Trends by BMW Model Family



Pictured to the left is a line graph which contains sales trends by year for each individual model that BMW offers. The information is quite clustered, which is why in addition to the graph color coding by model was added, a hover to highlight feature, as well as a filter which allows viewers to select which car model they choose to observe. From this graph there is an understanding towards how sales trends for each model change year by year and lack overall consistency. One trend to focus on in this graph is

the growing prevalence of model X6 which despite starting in the second to last place of overall sales in 2010, has grown to the largest quantity of annual sales in 2024 at \$1,836,395. This trend in sales growth can be captured by the BMW brand in order to target

V. Concluding Remarks

Asia is BMW's most promising long-term growth market, with Europe and North America showing continued but more stable potential. The rise of hybrid and electric vehicles, especially in Asia and Europe, signals where strategic investment will generate the greatest returns. Analysis at the model-level further highlights that buyers of luxury vehicles exhibit low price sensitivity, while mid-range customers are more responsive to price changes. It also shows that long-term sales trends show significant recent momentum for models such as the X6. Finally, high-performing models tend to be automatic diesel configurations, although price and engine size do not significantly differentiate high from low sales. Based on this, some actions BMW can take to retain and increase sales would be to prioritize investing in Asia's growing demand, speeding up electric vehicle and hybrid expansion in Asia and Europe, optimize their product mix based on model performance (emphasis on high growth models such as the X6), adjust pricing based on model tier (luxury vs mid-range), adapt region specific strategies for traditional fuel markets (slowly taper traditional fuel offerings in regions like South America and Africa). These insights enable BMW's leadership with data-driven strategies for pricing, production planning, and targeted regional investment.