Automobile Dashboard Analysis

Sales Performance, Trends, and Insights

Introduction

- **Project Objective:**
  Analyze automobile sales data to uncover trends, category contributions, targets, and regional distribution to support business decisions.
- **Scope:**
  Covers data cleansing, transformation, DAX measures, and interactive dashboards in Power BI for a multi-year/multi-region automobile dataset.

Requirement Analysis

- **Business Questions Covered:**
  - Sales by product category, region, and model
  - Trend and variance tracking over months/years
  - Pipeline, performance vs targets
  - Customer and geographic breakdowns
  - Data cleaning and feature engineering for analytics

Methodologies

- **Data Cleaning:**
  Used Power Query for removing unnecessary columns, handling duplicates, merging tables, replacing values, and adding calculated columns (see Task 2).

- F**eature Engineering:**
  Created total cost columns, split date columns, grouped and pivoted data as needed.

- **DAX Measures:**
  Calculated total/average sales, YTD, moving average, sales contribution, variances, running totals, top 5 products, profit margin.

- **Visualization:**
  Designed diverse charts, cards, slicers, and bookmarks for interactivity and storytelling.

Approach and Workflow

- **Step-by-step Process:**
  - Loaded raw data and reviewed columns.
  - Cleaned and transformed data
  - Built relationships/model where required.
  - Created custom DAX calculations per business scenario.
  - Designed the interactive dashboard by topic/insight.
  - Used bookmarks and navigation for storytelling.

Data Cleaning and transformation *(from Step 2)*

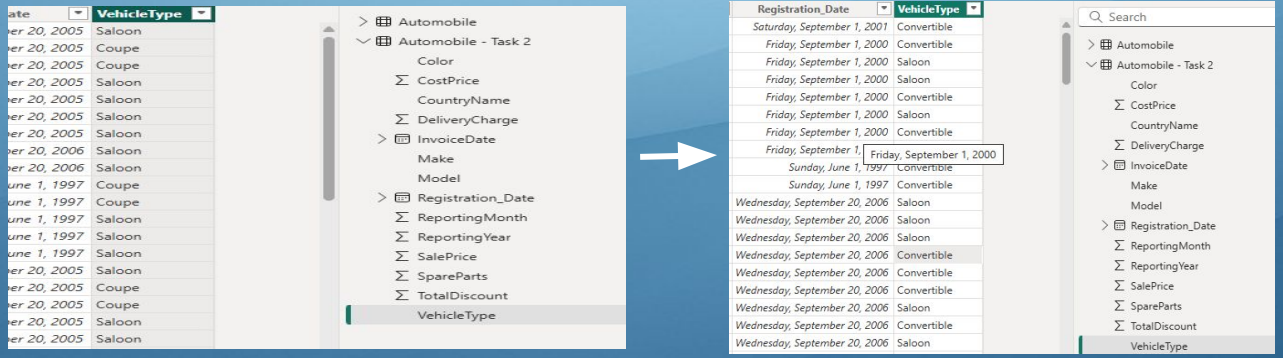
- **Column Removal:**

Go to Home > Transform Data (Power Query) -> Select both columns (Ctrl+click), right-click, and choose "Remove Columns." -> Click "Close & Apply" to enact the change.

InvoiceDate	Make	CountryName	SalePrice	CostPrice	TotalDiscount	DeliveryCharge	SpareParts	Model	Color	ReportingYear	ReportingMonth	Registration_Date	VehicleType
Monday, November 2, 2015	Jaguar	USA	42250	30700	350	-50	250	XK	Silver	2015	11	Tuesday, September 20, 2005	Saloon
Friday, October 2, 2015	Jaguar	USA	42250	67000	200	-50	250	XK	Silver		10	Tuesday, September 20, 2005	Coupe

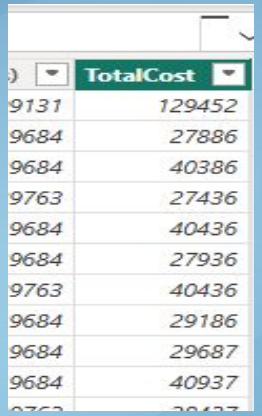
- **Value Replacement:**

In Power Query, Select VehicleType column -> Go to Transform > Replace Values -> Enter "Coupe" (find) and "Convertible" (replace), then click OK.



- New Calculated Column:

In Power Query, Add Column > Custom Column ->
Formula: Total Cost (Column Name)=
[CostPrice] + [DeliveryCharge] + [SpareParts] + [LaborCost]



	TotalCost
9131	129452
9684	27886
9684	40386
9763	27436
9684	40436
9684	27936
9763	40436
9684	29186
9684	29687
9684	40937

- Date Splitting

In Power Query, select InvoiceDate -> Add Column > Date >

Year and Date > Month to create new columns. Or

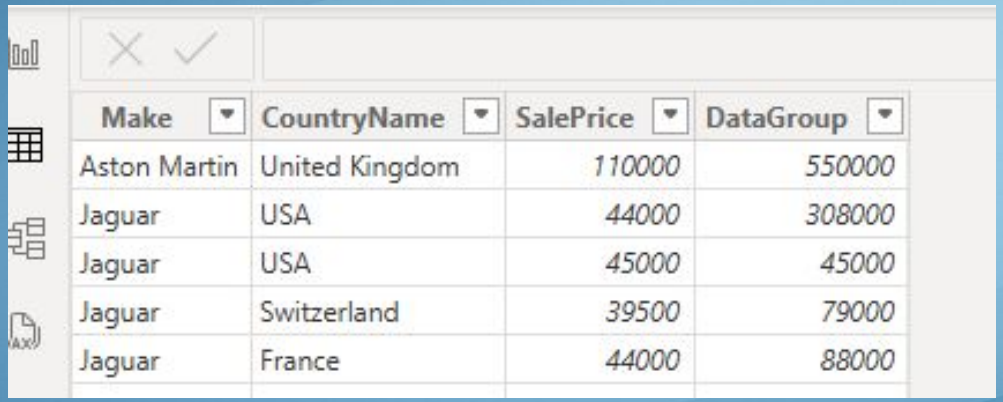
DAX Formula: InvoiceYear = YEAR(Automobile[InvoiceDate])

& InvoiceMonth = MONTH(Automobile[InvoiceDate])

InvoiceYear	InvoiceMonth
2013	12
2012	1
2012	2
2012	3
2012	4
2012	5
2012	6
2012	7

❖ Data Grouping

In Power Query, select both columns -> Go to Transform > Group By -> Make, CountryName. Operation: Sum of SalePrice.



Make	CountryName	SalePrice	DataGroup
Aston Martin	United Kingdom	110000	550000
Jaguar	USA	44000	308000
Jaguar	USA	45000	45000
Jaguar	Switzerland	39500	79000
Jaguar	France	44000	88000

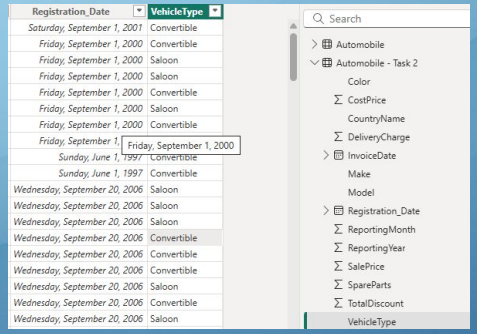
Data Cleaning & Transformation (Part 1)

Column Management & Basic Transformations

- **Column Removal**
  - **Removed ClientName, LaborCost**
  - **Streamlined for analysis**
  - **Improved model performance**

Make	CountryName	SalePrice	DataGroup
Aston Martin	United Kingdom	110000	550000
Jaguar	USA	44000	308000
Jaguar	USA	45000	45000
Jaguar	Switzerland	39500	79000
Jaguar	France	44000	88000
Jaguar	United Kingdom	44000	484000
Jaguar	United Kingdom	39500	632000
Jaguar	United Kingdom	110000	220000
Jaguar	USA	39500	39500

- **Value Standardization**
  - **Coupe → Convertible**
  - **Consistent categorization**
  - **Better reporting accuracy**

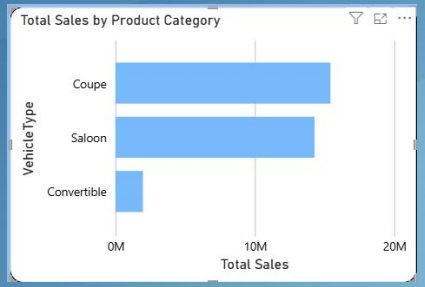


Data foundation optimized: Unnecessary columns removed, values standardized, ready for advanced transformations

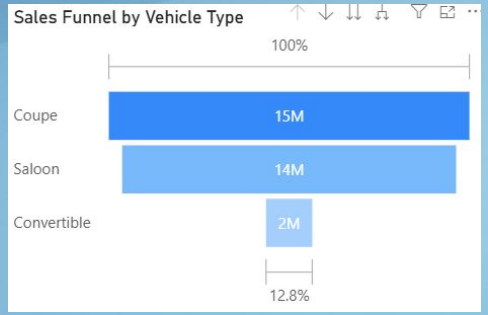
Key Visualizations

(Sales Overview)

Bar

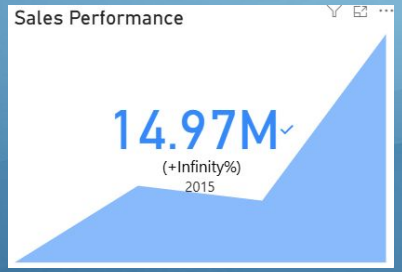


Funnel

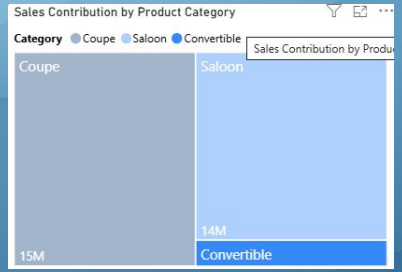


Card

KPI



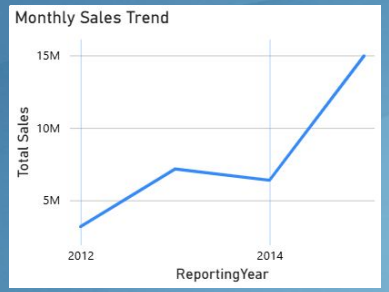
TreeMap



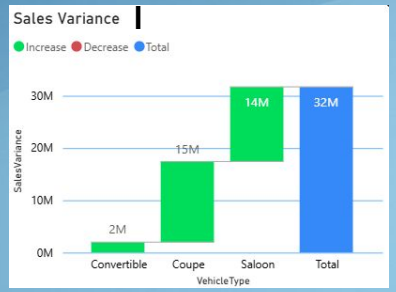
Key Visualizations

(Trend Analysis & Regional Insights)

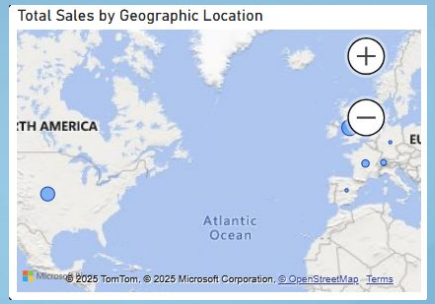
Line



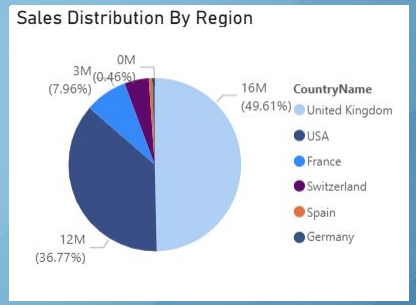
Waterfal



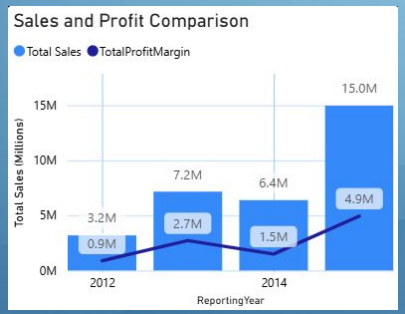
Map



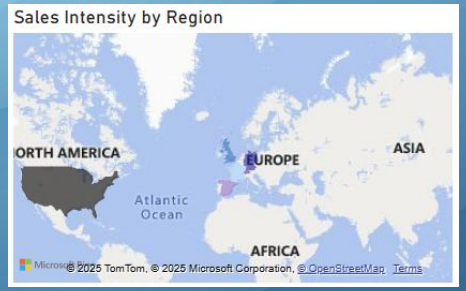
Pie



Combo



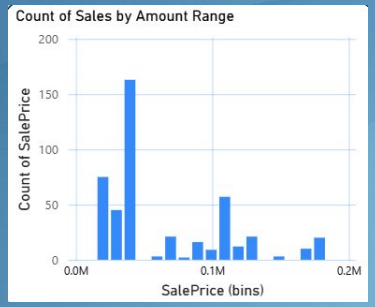
Region Intensity



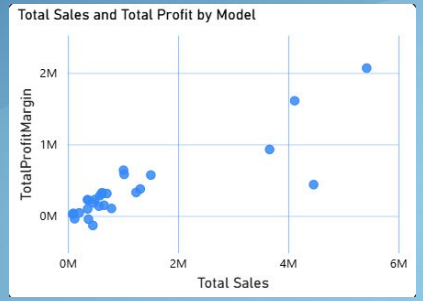
Key Visualizations

(Product Performance & Performance vs Target)

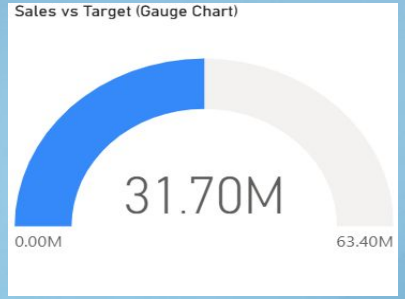
Histogram



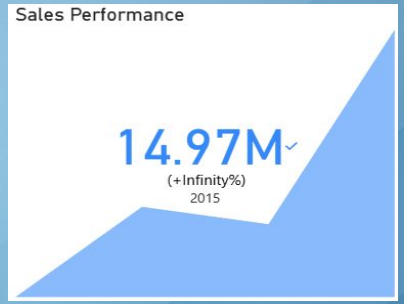
Scatter



Gauge

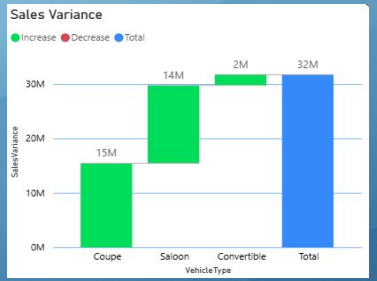


KPI



Top Sellers

Bullet



Key Findings (Insights)

- List at least 5 actionable insights discovered:
  - Example: "Coupe and Saloon dominate sales, accounting for over 90% by value."
  - "Sales volume spiked after 2014, especially in France and Germany."
  - "KPI and Gauge visuals show targets exceeded in FY2015."
  - "Sales variance shows Convertible segment is under-performing."
  - "Geographical heat map confirms Western Europe as core market."

Actionable Recommendations

- Based on findings, propose 2–3 action steps:
  - "Increase marketing for Convertibles in mid-performing regions."
  - "Focus inventory and sales efforts on Coupes and Saloons."
  - "Leverage top-performing regions for new model launches."

Storytelling (Bookmarks)

- **Briefly explain your interactive navigation:**
  - “Each dashboard tab presents a new insight journey, allowing executive users to click through Sales, Trends, Regions, Products, and Performance vs Target using bookmarks and navigation arrows. This supports both quick overviews and detailed drill-downs.”

Approach to KPI/Target Tracking

- How the dashboard uses Gauge, KPI card, and Bullet chart for performance vs. sales targets.
- Draw attention to visuals showing actual vs target.

Methodological Reflection

- “All data transformation was performed in a separate Power BI copy to ensure dashboards and visuals remained functional.”
- Note the importance of cleaning & modeling early in your workflow.

Limitations and Next Steps

- Potential data gaps (e.g., missing product attributes, limited regions).
- Suggestions: “Next analysis could include customer segmentation or predictive forecasting.”

Conclusion

- **Summarize impact:**
  “Comprehensive Power BI reporting has improved transparency on product and region performance, supported target tracking, and unlocked actionable trends for management.”

Thank You!

Q&A