1. Project Overview

This project focuses on building a storytelling-driven sales performance dashboard using Excel and Power BI.

The goal is to move from static, reactive reports to an interactive and insight-driven analytics solution that helps management make informed decisions related to sales, promotions, and inventory planning.

The solution combines data preparation in Excel with advanced visualization and DAX analytics in Power BI to present a clear, executive-friendly view of retail sales performance.

2. Business Scenario

A retail chain wants a consolidated view of sales performance across:

- Time (monthly and yearly trends)
- Product categories
- Sales targets vs actual performance

3. Problem Statement

Manual and static reports are no longer sufficient due to:

- Increasing data volume
- Lack of interactivity
- Difficulty identifying key performance drivers

The objective is to clean, model, analyze, and visualize sales data to deliver actionable insights through an interactive dashboard.

4. Pain Points Addressed

The following challenges were identified and addressed in this project:

- Reports were static and difficult to explore
- Sales data contained duplicates and inconsistent values
- Too many raw columns made analysis complex
- Regional and category-level drill-down was not available
- Management lacked clear KPIs and targets

5. Data Preparation (Excel)

Before loading data into Power BI, Excel was used for data cleanup, including:

- Removing duplicate records
- Validating numeric columns (Quantity, Price, Sales)
- Ensuring consistent product category names
- Formatting date columns properly
- Verifying calculated fields like Total Amount

Excel PivotTables and PivotCharts were also used to perform initial storytelling and validation before building the Power BI model.

6. Data Model Design (Power BI)

Tables Used

- Retail_Sales_Performance (Fact table)
- Date_Dim (Date dimension table)

Data Model Approach

- Star schema design
- One-to-many relationship:
    - Date_Dim[Date] → Retail_Sales_Performance[Date]
- Single-direction cross-filtering for performance optimization

This model ensures accurate time-based analysis and clean DAX calculations.

7. Key DAX Measures Created

The following KPIs were created using DAX:

- Total Sales
- Total Units Sold
- Average Order Value (AOV)
- Month-over-Month (MoM) Growth
- Year-over-Year (YoY) Growth
- Target Sales
- AOV Target

These measures drive all visuals dynamically based on slicer selections.

8. Dashboard Design & Visuals

KPI Cards

- Total Sales
- Total Units Sold
- Average Order Value
- YoY Growth

These provide a quick executive summary at the top of the dashboard.

Trend Analysis

- **Monthly Sales Trend (Line Chart)**
  Shows sales fluctuations over time and helps identify growth and decline periods.

Category Analysis

- **Sales by Category (Column Chart)**
  Compares performance across product categories.
- **Sales Distribution by Product Category (Pie Chart)**
  Shows contribution of each category to total sales.
- **Annual Sales Distribution by Product Category (Stacked Bar Chart)**
  Highlights how category contributions change year over year.

Performance vs Target

- **Sales vs Target (Gauge Chart)**
  Clearly shows whether overall sales are below or close to target.
- **Average Order Value vs Target (Gauge Chart)**
  Helps assess pricing and customer purchase behavior.

Interactivity

- Product Category & Year slicers
- Cross-filtering between visuals
- Clean drill-down experience

The following dashboard was built using Power BI to present a storytelling-driven view of retail sales performance, enabling management to analyze trends, compare categories, and make informed business decisions.

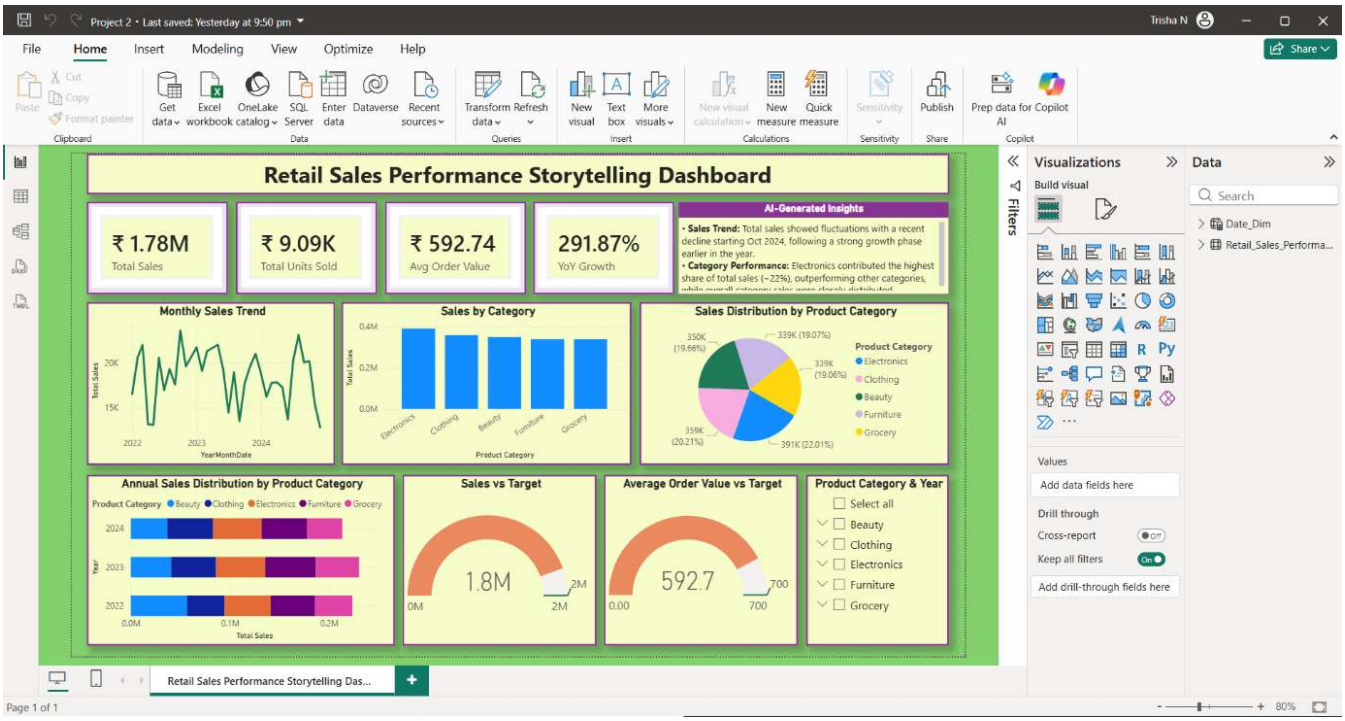

Figure 1: Retail Sales Performance Storytelling Dashboard

9. AI-Generated Insights (Smart Narrative)

Key Insights:

- Sales show fluctuations with a recent decline toward the end of the period.
- Electronics contributes the highest share of total sales.
- Sales performance is close to target, but improvement is needed to fully achieve targets.
- Average order value is slightly below target, indicating pricing or discount optimization opportunities.

10. Business Insights & Recommendations

Based on the dashboard analysis:

- Focus promotions on high-performing categories like Electronics
- Investigate causes for recent sales decline (seasonality, demand shifts)
- Optimize pricing strategies to improve Average Order Value
- Use category-level insights for better inventory planning