Power BI Project Documentation

Project Title: Sales & Supply Chain Analytics Dashboard

Github link

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1. Project Overview

This project provides a fully interactive analytical dashboard built using **Power BI**, designed to analyze and visualize business performance across two integrated datasets:

1. Superstore Sales Dataset

Focused on sales performance, customer behavior, product categories, profitability, and regional market performance.

2. Supply Chain Dataset

Focused on logistics operations, stock levels, supplier performance, manufacturing lead times, transportation modes, and delivery efficiency.

The dashboard consists of **three main pages**:

- **Sales Overview**
- **Orders Overview**
- **Profit Overview**
- **Product Details**

Each page provides strategic insights to support data-driven decisions in **sales**, **marketing**, **operations**, and **supply chain management**.

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2. Objectives

● Analyze sales performance across time, customer segments, product categories, and geographic regions.
● Track order volumes, identify top-performing products, and analyze customer purchasing patterns.
● Visualize end-to-end supply chain efficiency including stock availability, lead times, supplier performance, and shipping operations.
● Provide a visually clean, interactive dashboard that simplifies complex data for decision-makers.

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3. Data Sources

3.1 Superstore Sales Dataset

This dataset contains retail transactional data used to evaluate commercial performance.

Main Fields Used:

- Order Details: Order ID, Order Date, Ship Date, Ship Mode
- Customer Information: Customer ID, Name, Segment
- Location Data: Country, State, City, Region
- Product Details: Product ID, Category, Sub-Category, Product Name
- Sales Metrics: Sales, Profit, Quantity

Example Data (excerpt):

- Order ID: *CA-2017-152156*
- Customer: *Claire Gute*
- Segment: *Consumer*

- Category: *Furniture*
- Product: *Bush Somerset Collection Bookcase*
- Sales: *261.96*

3.2 Supply Chain Dataset

This dataset contains operational and logistics data.

Main Fields Used:

- Product Data: Product Type, SKU, Price, Availability
- Sales Operations: Units Sold, Revenue Generated
- Customer Demographics: Gender Segments
- Logistics: Shipping Times, Carriers, Transportation Routes, Costs
- Supplier & Manufacturing: Supplier Name, Lead Time, Production Volume, Inspection Results, Defect Rates

Example Data (excerpt):

- Product Type: *Haircare*
- SKU: *SKU0*
- Availability: *55*
- Revenue: *8661.99*
- Supplier: *Supplier 3 – Mumbai*
- Lead Time: *29 Days*

- Shipping Carrier: *Carrier B*

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4. Data Cleaning & Transformation

Performed entirely in **Power Query**.

Key Steps:

● Standardized date formats for Order Date & Ship Date
● Removed duplicates and null values
● Created calculated columns:

- Year
- Month
- Profit Ratio
- Shipping Duration = Ship Date – Order Date
  ● Merged and appended datasets where required (SKU–Product links)
  ● Ensured consistent data types across all tables

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5. Measures & DAX Calculations

Core Measures:

- **Total Sales = SUM(Sales)**
- **Total Profit = SUM(Profit)**
- **Total Orders = DISTINCTCOUNT([Order ID])**

- **Avg Shipping Cost**
- **Shipping Duration Days**
- **Total Products Sold (SC)**
- **Total Revenue (SC) = SUM(Revenue Generated)**

Time Intelligence Measures:

- Sales per Year
- Monthly Sales Trend
- Year-over-Year Growth
- Orders per Month

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6. Dashboard Pages

6.1 Sales Overview Page

This page highlights the main commercial performance indicators.

Main Visuals:

- KPI Cards: Total Sales, Total Profit, Total Orders
- Line Chart: Sales by Year/Month
- Pie Chart: Sales by Category
- Pie Chart: Sales by Segment

- Bar Chart: Sales by City
- Table: Top Customers by Total Sales

Key Insights Enabled:
- Track historical sales patterns
- Identify strong product categories
- Recognize top revenue-generating cities
- Highlight VIP/high-value customers

6.2 Orders Overview Page

Focuses on customer orders and product-level insights.

Main Visuals:

- Total Orders KPI
- Orders Over Time (Line Chart)
- Orders by Category & Segment (Pie Charts)
- Sales by Order ID (Bar Chart)
- Table: Orders with Customer + Product details
- Orders by Sub-Category
- Top Products by Order Volume

Key Insights Enabled:
- Which order IDs generate the highest revenue
- Product activity across various segments
- Seasonal/Monthly order fluctuations

6.3 Product Details Page

Provides granular product-level profitability and performance.

Main Visuals:

- Profit Heatmap (Green = Profit / Red = Loss)
- Product Table including:
    - Product ID
    - Product Name
    - Total Sales
    - Total Orders
    - Total Profit
    - City Distribution

Key Insights Enabled:
● Identification of products with negative profit margins
● Best-selling and high-demand products
● Profit contribution across geographic areas

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7. Filters & User Interactivity

Applied Slicers:

- City
- Region

- State
- Year

Users can explore the data dynamically with multi-level filtering to gain deeper insights.

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8. Design & UI Choices

● Professional **Dark Blue** theme
● Rounded KPI cards for a modern look
● Clean icons + navigation top bar
● Balanced spacing & minimal layout clutter
● Conditional formatting for clear productivity indicators
● High-readability typography

The design approach focuses on clarity, corporate aesthetics, and smooth interactivity.

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9. Business Insights Summary

● Technology & Office Supplies are the strongest revenue-generating categories.
● The Consumer segment contributes the highest portion of total sales.
● Major revenue comes from cities like **New York**, **Los Angeles**, and **Seattle**.
● Supply chain data reveals noticeable variations in **lead time** and **defect rates** across suppliers.
● Some products contribute to sales but generate losses — indicating a pricing or cost-management issue.

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10. Conclusion

This Power BI dashboard delivers a unified analytical ecosystem that integrates both **sales** and **supply chain** data.
It helps businesses to:

- Strengthen strategic decision-making
- Improve inventory and logistics planning
- Identify target customer segments
- Detect performance gaps and operational inefficiencies

The dashboard is ready for client presentation, portfolio demonstration, or real business deployment.

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11. Appendix

- Dataset 1: Superstore Sales Dataset (public)
- Dataset 2: Customized Supply Chain Dataset
- Tool: Microsoft Power BI Desktop