## Project Title:

Regional Sales Performance Analysis & Insights Dashboard

## Prepared By:

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## Tools & Technologies Used:

Power BI: Data cleaning, analysis, data visualization and dashboard creation

## Client / Stakeholder:

Sales Manager

Marketing Manager

Product Analyst

# 1. Executive Summary

## 1.1. Problem Statement

Company X has been experiencing inconsistent sales performance across various regions. Certain regions are consistently underperforming, which is impacting the company's overall revenue growth. Additionally, there is an uneven contribution to profit and quantity across product categories and sub-categories. These inconsistencies hinder strategic planning and revenue growth. A lack of clear visibility in regional and product-level performance has made it challenging for stakeholders to take targeted actions.

## 1.2. Proposed Solution

Develop an interactive Regional Sales Performance Dashboard using Power BI that visualizes total sales, profit, and quantity across regions and product categories/sub-categories. The dashboard highlights top-performing regions (e.g., West), identifies high and low-profit categories, and empowers stakeholders with actionable insights to support strategic, region-specific sales decisions.

## 1.3. Business Goals

- Identify top-performing and underperforming regions to optimize regional strategies.
- Understand sales distribution across product sub-categories to refine marketing and inventory planning.
- Analyze profit contribution by category to prioritize high-margin products.
- Track quantity sold by category and sub-category to align supply with demand.

## 1.4. Tools Used

Powe BI

## 2. Stakeholder Analysis

| Stakeholder | Role | Goal | Pain Points | Expectations |
|---|---|---|---|---|
| Sales Manager | Oversees sales | Boost regional sales | Lacks timely, region-specific sales data | Real-time dashboard to analyze sales in different regions |
| Marketing Manager | Drives marketing | Run targeted campaigns | Difficulty identifying low-performing areas and products | Insights into targeted promotions |
| Product Analyst | Analyze products | Align sales performance with product offerings | Lacks clear visibility into product performance by region and categories | Ability to filter sales data by product category-sub-category and region |

# 3. Requirement Gathering

## 3.1. Business Requirements (BR)

| ID | Requirement |
|---|---|
| BR1 | Identify top-performing and low-performing regions to support regional planning. |
| BR2 | Analyze sub-categories to understand which products generate the most revenue. |
| BR3 | Understand which product categories contribute most to profit for better strategic focus. |
| BR4 | Examine sales volume across categories and sub-categories to aid inventory and demand planning. |
| BR5 | Provide at-a-glance performance metrics for leadership decisions. |
| BR6 | Enable flexible filtering to explore performance from different angles (region, category, date). |

## 3.2. Functional Requirements (FR)

| ID | Requirement |
|---|---|
| FR1 | Display total sales per region in a bar chart and highlight the top region with value and percentage. |
| FR2 | Visualize total sales by sub-category using a donut chart with values and percentages. |
| FR3 | Display total profit by category (Furniture, Office Supplies, Technology) using a bar chart. |

| | |
|---|---|
| FR4 | Show quantity sold by category and sub-category using a stacked bar chart, color-coded by sub-category. |
| FR5 | Display KPIs as cards: Total Sales, Total Profit, Profit Margin, and Total Quantity. |
| FR6 | Provide slicers/filters for Category, Region, and a date range (2014–2017). |

# 4. User Stories

## 4.1. Sales Manager

- As a Sales Manager, I want to view real-time sales data by region, so that I can identify and act on underperforming areas quickly.
- As a Sales Manager, I want to track real-time KPIs like total sales, total profit, profit margin, and quantity sold, so that I can make timely, data-driven decisions to optimize regional performance.

## 4.2. Marketing Manager

- As a Marketing Manager, I want to view sales performance by region and sub-category so that I can target marketing campaigns in underperforming regions and promote high-selling products more effectively.
- As a Marketing Manager, I want to identify which product categories generate the most profit so that I can allocate promotional budgets to the most profitable product lines.

## 4.3. Product Analyst

- As a Product Analyst, I want to filter sales data by product and region, so that I can understand product performance across different geographies.
- As a Product Analyst, I want to analyze the quantity sold by category and sub-category so that I can forecast inventory needs and align product availability with demand.
- As a Product Analyst, I want to compare total sales and profit by product category & sub-category so that I can identify which products drive revenue versus profitability and recommend adjustments to the product mix.

# 5. Data Analysis Section

## 5.1. Data Collection and Description

- Source – Public dataset
- Key Fields – Order ID, Order Date, Ship Date, Ship Mode, Customer ID, Customer Name, Segment, Country, City, State, Postal Code, Region, Product ID, Category, Sub-Category, Product Name, Sales, Quantity, Discount, Profit

## 5.2. Data cleaning and preparation

- Removed Unnecessary Columns: Kept only relevant fields including order date, segment, region, category, sub-category, sales, quantity, discount and profit.
- Handled Missing Values: Filled empty values with appropriate defaults (zero).
- Changed data types appropriately (Eg: text, number, date).
- Removed Duplicates: Ensured no duplicate rows based on unique identifiers.
- Created custom columns in power query including profit margin, sales per unit and profit per unit. (Eg: if [Sales] <> 0 then ([Profit] / [Sales]) * 100 else null)
- Transformed Data: Grouped data by regions, categories, and other relevant dimensions to summarize key metrics.
- Sort and organized data. (Eg: Sort the sales values in an ascending order)

## 5.3. Data Relationships

Established relationships between Detailed Data and Summary View tables to enable interactive filtering.

## 5.4. Created calculated measures and DAX measures

Used DAX to calculate key metrics such as total sales, total quantity, total profit, sales per unit, profit per unit, profit margin, maximum sales and average discount for interactive analysis and reporting.

Eg: ***Formula to calculate total sales***

```
Total Sales = SUM('Detailed Data'[Sales])
```

***Formula to calculate profit margin***

```
Profit Margin = DIVIDE([Total Profit], [Total Sales])
```

## 5.5 Data Dictionary

| Field | Description | Type | Example |
|---|---|---|---|
| Order Date | Date when the order was placed | Date | 2023-01-10 |
| Region | Sales region | Text | East |
| Segment | Customer Segment | Text | Consumer |
| Category | Product Category | Text | Furniture |
| Sub-Category | Product sub-category | Text | Chairs |
| Sales | Sales amount | Currency | $450.00 |
| Quantity | Number of units sold | Number | 3 |
| Discount | Discount applied on the sale | Decimal | 0.10 |
| Profit | Profit earned from the sale | Currency | $85.00 |
| Sales Per Unit | Sales divided by quantity | Calculated | $150.00 |
| Profit Per Unit | Profit divided by quantity | Calculated | $28.33 |
| Proft Margin | Profit as a % of sales | Calculated | 0.19 |

# 6. Dashboards & Reports (Power BI)

## 6.1. Objective

To analyze regional sales performance and identify key drivers behind sales, profit, and quantity across product categories and sub-categories in the U.S. market.

***Key Metrics (Overall):***

Total Sales: $2.30M

Total Profit: $286.41K

Profit Margin: 12.47%

Total Quantity Sold: 38K units

***Top Performing Region:***

West Region

Sales: $725,458

31.6% of total sales

## 6.2. Breakdown Insights

***Sales by Region:***

Objective - To compare sales performance across different regions and help prioritize sales efforts, campaigns, and resource allocation geographically.

Insight - West leads in total sales, followed by East, Central, and South.

***Sales by Sub-Category:***

Objective - To analyze which specific product sub-categories drive the most revenue, informing product and marketing strategies by focusing on top-selling items while identifying underperforming sub-categories that need attention.

Insights - Top contributors: Chairs, Phones, Tables, Storage. Each sub-category is visualized with proportion and value.

***Profit by Category:***

Objective - To understand which main product categories contribute most to profit, revealing whether high sales also translate into high profitability (e.g., Technology vs. Furniture), while helping to optimize the product mix, prioritize more profitable categories, and support pricing and cost control strategies.

Insights - Technology is the most profitable category, followed by Office Supplies. Furniture has the lowest profit margin.

***Quantity by Category & Sub-Category:***

Objective - To examine sales volume (units sold) distribution across product categories and their sub-categories.

Insights - High quantities sold in Binders and Paper suggest strong demand but may not directly correlate with revenue or profit due to low price points.

***Interactive Features:***

- Slicers for Category, Region, and Order Date Range to filter data dynamically.
- Visual indicator for Top Region performance.

***Business Insights:***

1. Focus on the West region as it is the top performer, maintaining investment and replicating successful strategies in weaker regions to boost overall performance.
2. Boost marketing in South and Central regions – These regions underperform in sales and need targeted promotions or improved distribution.
3. As top-selling sub-categories, prioritize Phones and Chairs by maintaining stock and using them in key campaigns.
4. Reassess low-performing sub-categories (Copiers, Machines, Accessories) by revising pricing, bundling, or discontinuing.
5. As technology is the most profitable category, it's ideal for upselling and bundling strategies.
6. Optimize the Furniture category by reviewing pricing, costs, and discount strategies to improve profit.
7. Balance volume with margin, as high-selling items like Binders contribute less to profit.

8. Improve profit margin (12.47%) by refining pricing, sourcing, or reducing discounts.
9. Strengthen inventory planning by using high-quantity sales data to forecast demand and manage stock efficiently (e.g., Chairs, Binders).