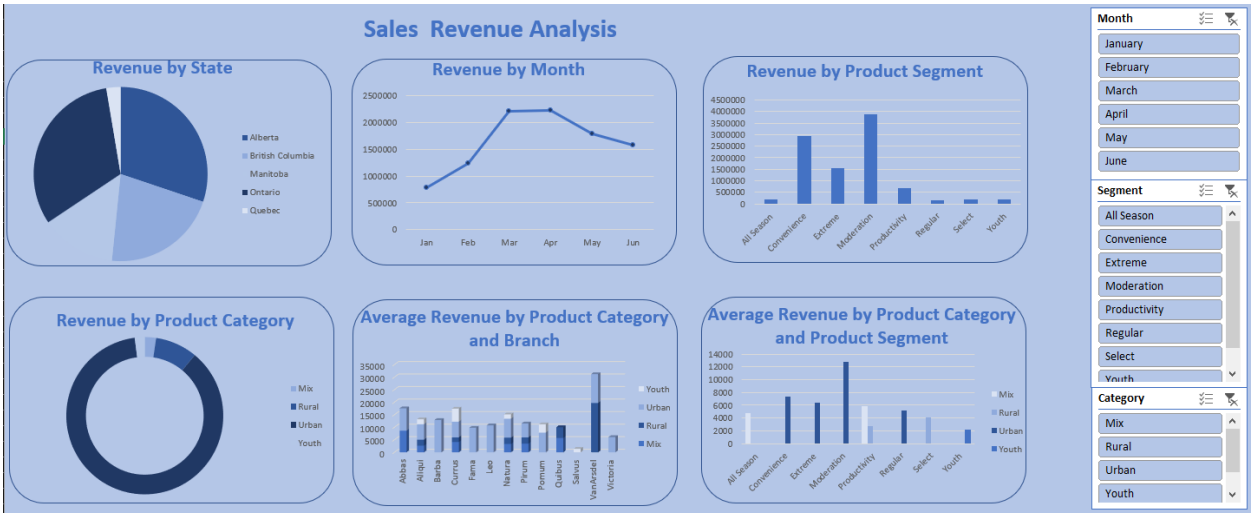
Case Study: Sales revenue analysis & insight development using Excel



Case study Overview

This project analyzes a historical sales dataset sourced online to solve a business intelligence challenge: sales performance was obscured across four separate, fragmented CSV files. The project's goal was to transform this raw, scattered data into unified, actionable insights by engineering a single master dataset in Excel. This involved using advanced data manipulation functions to establish crucial linkages. The final deliverable was an interactive Excel dashboard featuring Pivot Charts and dynamic Slicers, enabling the identification of regional concentrations and seasonal trends to optimize resource allocation and improve sales forecasting.

Case Study Problem

The business intelligence was obscured by four separate CSV files. The challenge was resolved by engineering a unified master dataset. This began with importing and connecting the four files into Excel. Transformation steps followed using INDEX/MATCH and VLOOKUP to establish crucial linkages across fragmented fields, enabling accurate analysis and insight generation.

Analysis process

- Built Pivot Tables on the consolidated dataset to aggregate revenue and average revenue across multiple dimensions.
- Developed an interactive dashboard using Pivot Charts.
- Connected slicers for Month, Segment and Category to enable dynamic filtering.

Visualization: The dashboard consists of the following visuals:

- Revenue by State – Pie Chart
- Revenue by Month – Line Chart

- Revenue by Product Segment – Bar Chart
- Total Revenue by Product Category – Donut Chart
- Average Revenue by Product Category and Manufacturer – Bar Chart
- Average Revenue by Product Category and Product Segment – Bar Chart

Insight derived

1. Geographic Concentration: Ontario, Alberta and British Columbia are the dominant revenue.
2. Seasonal trend: Sales significant rise sharply from January to April.
3. Segment Performance: Moderation and Convenience segments generate the highest total revenue.
4. Category Dominance: Urban leads in revenue, followed closely by Rural.
5. Branch Benchmarking: VanArsdel delivers the highest Average Revenue in the Urban and Rural categories.
6. High-Value Niche Identification: Moderation and Convenience show the highest average revenue levels.

How I approached the work

Data Sourcing and Consolidation

- Four raw CSV files contained sales records.
- Imported them into Excel and merged them into one master worksheet.

Data Transformation and enrichment.

- Used the TEXT function to derive Month names from dates.
- Used INDEX/MATCH and VLOOKUP to merge and enrich data fields scattered across files.

Impact metrics

- Improves monthly and quarterly sales forecasting accuracy.
- Increases Average Transaction Value (ATV) by identifying high-profit product combinations.
- Achieves targeted revenue growth in key high-value segments. Strengthens market share in high-performing regions.

Business objective

Optimize sales strategy and resource allocation by understanding revenue performance across regions, months, segments and categories. The goal was to answer:

- Which regions and months generate the most revenue?
- What seasonal patterns exist?
- Which segments and categories drive or reduce profitability?

Business recommendation

- Resource focus: Invest more in Ontario, Alberta, and British Columbia while diagnosing underperforming regions.
- Inventory & Marketing Alignment: Build inventory and launch promotions ahead of the April demand surge.
- Product Strategy: Prioritize investment and promotion for Urban category and Moderation segments deliver the highest Average Transaction Value (ATV).
- Reevaluate Low Performers: Reassess weak segment and categories such as Regular and Select segment and Youth and Rural category.

Reason behind each chart

- Pie Chart: Shows revenue concentration across regions at a glance.
- Line Chart: Reveals monthly sales trends and seasonality.
- Bar Chart: Compares product segments to identify top performers.
- Donut Chart: Displays proportional contribution by product category.
- Bar Chart: Enables branch-category comparison to identify premium combinations.
- Bar Chart: Shows cross-dimensional patterns across categories and segments.