

Regional Sales Analysis

Compiled by: Shanay Murdock

Problem Statement

The sales teams often lack a clear, data-driven understanding of regional performance, making it difficult to optimize resources and identify growth opportunities.

- **Inconsistent revenue and profit** performance across U.S. regions.
- **Lack of visibility** into key business drivers like seasonal trends, top-performing products, and channel profitability.
- **Goal:** Leverage 5 years of historical data to pinpoint growth levers and formulate a strategy to increase profitability and market share.

Approach

To address the problem, we performed a comprehensive exploratory data analysis (EDA) to transform raw data into strategic insights.

1. **Data Consolidation:** Merged six distinct datasets (Sales Orders, Customers, Products, etc.) into a single master dataset.
2. **Data Cleaning:** Standardized formats, corrected data types, and ensured data integrity for accurate analysis.
3. **Analysis & Visualization:** Explored Categorical and numerical variables to identify key trends in regional performance, sales channels, and customer behavior.
4. **Insight Generation:** Synthesized findings to develop actionable recommendations.

Data Overview

The analysis is based on a robust dataset covering sales operations from **January 2014 to February 2018**.

- **Source:** A single Excel file containing multiple sheets of related data.
- **Primary Tables:**
 - Sales Orders (10,684 unique transactions)
 - Customers (175 unique customers)
 - Products (30 unique products)
 - Regional/Location Data
- **Key Metrics:** Order quantity, unit price, line total, unit cost, and derived profit.

Project Workflow

The workflow chosen ensured a structured and logical progression from raw data to final recommendations:

Data Preparation > Categorical Analysis > Numerical Analysis > Churn/Inactive Customer Analysis > Insights & Recommendations

EDA - Regional Performance

Finding: The **West** is the revenue powerhouse, but the **Northeast** leads in overall profitability.

- The West generates the most sales revenue, making it a critical market for volume.
- However, the Northeast, despite having lower revenue, yields higher profit margins.
- The **Midwest** lags behind in both revenue and profit, representing a potential area for strategic review.

EDA - Channel & Product Insights

Finding: The **Wholesale channel** and a select few **products** are the primary drivers of our business.

- **Channel Profitability:** The Wholesale and Distributor channels are significantly more profitable than Export.
- **Top Products:** Just three products (**Product 26**, **Product 25**, and **Product 13**) account for a substantial portion of our total revenue, highlighting a dependency on these key items.

EDA - Customer Insights

Finding: A significant portion of our customer base is “inactive,” posing a risk to future revenue.

- We defined “inactive” customers as those in the top 25% for days since their last purchase.
- The **Midwest** has the highest number of these inactive customers.
- Losing these customers in a low-volume region could negatively impact sales in future as most inactive customers fall within the **Wholesale** and **Direct** categories.

Key Insights

1. **Revenue vs. Profitability Mismatch:** Our highest revenue region (West) is not our most profitable (Northeast).
2. **Channel Dominance:** The business heavily relies on the Wholesale and Distributor channels for profitability.
3. **Product Dependency:** A small portfolio of “hero” products drives a majority of sales.
4. **Customer Churn Risk:** A notable segment of our customer base, particularly in the low-volume Midwest, is at risk of churning.

Recommendations

Based on our findings, we propose the following strategic actions:

1. **Strengthen Core Channels:** Double down on relationships and incentive programs for our key Wholesale and Distributor partners.
2. **Diversity Product Focus:** Create marketing campaigns and cross-selling promotions to increase the sales of mid-tier products to reduce dependency on the top 3 SKUs.
3. **Launch a Re-Engagement Campaign:** Target inactive customers, starting with the Wholesale customers in the Midwest, with “we miss you” offers and promotions to win back their business and protect our revenue base.