



Customer Shopping Behavior Analysis: Optimizing Revenue & Opex

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Project Objectives

Defining goals for customer shopping analysis

Business Problem

- Rising OPEX due to inefficient discounting
- No clear segmentation
- Poor allocation of marketing spend
- Subscription model failing to increase AOV

Dataset Overview and Preparation

Dataset Overview

Comprehensive summary of the data features

The dataset contains X records, detailing customer demographics, purchase information, subscription status, discounts, and purchase frequency to build a unified customer behavior profile.

Data Cleaning

Essential steps for dataset readiness

We addressed duplicates and missing entries, converted categorical variables for analysis, created new metrics, and segmented customers to ensure a comprehensive understanding of shopping behaviors.



Customer Behavior Insights

Customer Demographics

Insights into Age and Gender Trends

The majority of customers fall within the **25-45 age range**, while spending patterns remain balanced across genders, suggesting a need for product-focused marketing strategies.



Spending Behavior

Understanding Purchase Patterns and Revenue Impact

Average purchase amount = \$60.1. However, the **frequency of purchases** plays a more significant role in driving overall revenue compared to individual transaction amounts.

Category Insights

Revenue Analysis of Product Categories

The **top revenue** is generated from Clothing and Accessories, while Footwear and Outerwear lag behind, highlighting potential areas for focused marketing and inventory strategies.

Impact of Discounts

Examining the Effects of Discounting Strategies

An analysis reveals that discounted purchases have a **slightly lower spend**, indicating blanket discounting can erode profit margins without significantly boosting overall revenue.

Discounted AOV = \$59.28,

Undiscounted AOV = \$60.13

→ 1.42% margin erosion

Subscription Analysis

Examining value in subscription offerings

Subscribers and non-subscribers exhibit **similar spending patterns**, indicating a lack of compelling value within the subscription model. Enhancing its offerings could increase engagement and revenue.

Revenue by Location

Understanding Regional Revenue Engagement Patterns

Revenue shows significant variability across states, highlighting distinct consumer behaviors and preferences that can inform targeted marketing strategies and localized supply chain optimization.

Customer Segmentation Table

Segment	Contribution	Strategic Focus
High Value	Top 33%	Retention & Upselling
Mid Value	Middle 33%	Growth & Cross-sell
Low Value	Bottom 33%	Reactivation & Opex Reduction

Customer Segmentation

Understanding customer spend terciles for strategies

High-Value

High-Value customers are the top spenders and repeat buyers, driving the majority of revenue, making them essential for retention-focused marketing strategies.

Mid-Value

Mid-Value customers show growth potential, as they are responsive to marketing efforts, and can be nurtured with targeted recommendations for increased spending.

Low-Value

Low-Value customers are infrequent buyers, representing an opportunity for cost-effective campaigns aimed at reactivation and increasing overall customer lifetime value.

Strategies for Optimization

Opex Optimization

Strategies to Enhance Operational Efficiency

Discounting Strategy

Stop broad discounting practices to protect profit margins and ensure that pricing strategies reflect the value of products while maintaining customer satisfaction.

Marketing Focus

Cut marketing spend directed at low-value segments to maximize return on investment and allocate resources effectively to higher potential customer groups.

Retention Automation

Automate retention campaigns for high-value customers to improve engagement, enhance loyalty programs, and reduce churn by delivering personalized offers and communications.

Revenue Optimization

Strategies for maximizing customer value

High-Value Focus

Retaining high-value customers is crucial; implementing loyalty programs and personalized communication can significantly enhance engagement and encourage repeat purchases.

Mid-Value Growth

Targeting mid-value customers with tailored cross-selling strategies can increase their average spend and transform them into high-value clients through relevant product recommendations.

Low-Value Reactivation

Reactivating low-value customers through cost-effective channels like email campaigns can boost their engagement, leading to potential increased purchases and overall revenue growth.



Business Impact

Expected Business Impact

- **Elimination of 1.42\% margin erosion → Restores \$1,427.77 in Annual Revenue Loss (Opex Savings).**
- **Increased retention of top customers → stabilizes revenue**
- **More efficient marketing budget allocation**
- **Operational savings through region-based planning**
- **Growth in mid-value customers through targeted promotions**

Recommendations

- Stop blanket discounting → reduces margin erosion
- Focus marketing budget on high & mid-value customers
- Improve Subscription Benefits → Shift Opex from margin-eroding discounts (pricing) to low-variable-cost services (e.g., faster, free shipping) to drive loyalty.
- Regional optimization of inventory & marketing
- Automate retention workflows for high-value customers

Final Insights Summary

Final Insights

Recapping Key Findings and Strategies

This presentation highlighted critical insights into customer behavior, emphasizing targeted marketing strategies and optimized inventory management based on regional engagement and customer segmentation for improved efficiency.





Thank You