

Strategic vs Data-Driven Segmentation

An end-to-end customer segmentation analysis using SQL, Python, Tableau

Problem Statement

Customer segmentation influences pricing, personalization, and retention strategy. However, business-defined segments (e.g., high-value vs discount-dependent) may not reflect true behavioural differences.

This model evaluates whether rule-based strategic segmentation aligns with data-driven behavioural clustering.

Data & Approach

Using customer-level lifetime features from Shopsphere:

- Lifetime revenue
- Lifetime order count
- Average lifetime discount

Two segmentation approaches were built:

1) Strategic Segmentation (Rule-Based)

Customers were categorized using:

- Top 25% revenue threshold
- Median lifetime discount threshold

Segments:

- Premium Core
- Incentive-Driven High Value
- Discount Dependent
- Low Engagement

2) Behavioural Clustering (Data-Driven)

K-Means clustering was applied on standardized behavioural features to identify latent customer groups.

Results were compared across:

- Revenue concentration
- Engagement patterns
- Overlap distribution

Findings

Revenue Concentration is Behaviourally Skewed

- Behavioural clustering revealed one cluster contributing ~57% of total revenue.
- Customer value is structurally concentrated in specific behavioural patterns.

Strategic Segments appear Revenue-Balanced

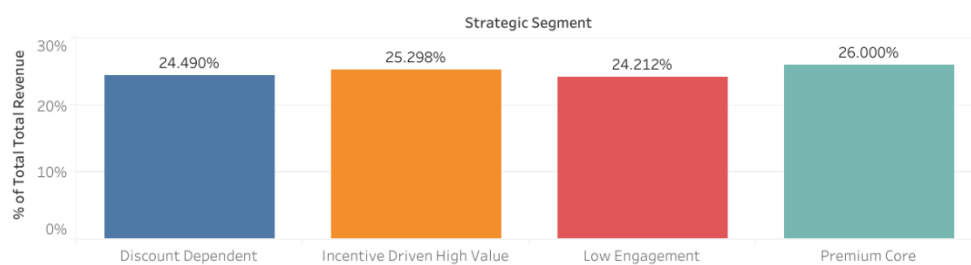
- Rule-based segments each contributed ~24–26% of revenue.
- Strategic segmentation distributes value evenly by design but may conceal performance asymmetry.

Discount Dependency does not fully explain Value

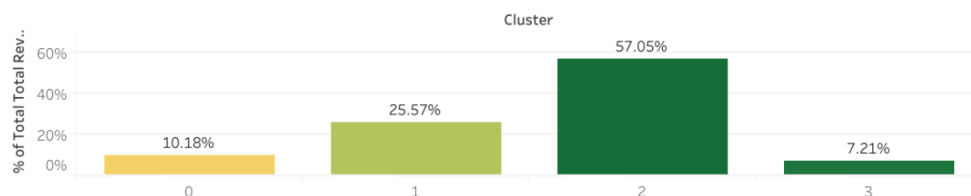
- High-value customers existed both in low- and moderate-discount behavioural clusters.
- Revenue intensity was more closely tied to engagement and ordering behaviour than discount depth.

Strategic vs Data-Driven Segmentation Analysis

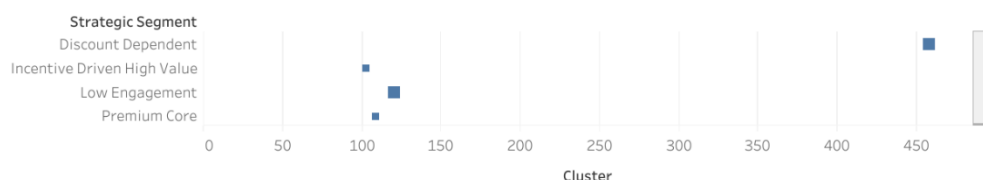
% of Total Revenue by Strategic Segment



Revenue Contribution by Cluster



Strategic vs Cluster Overlap



Link: <https://tinyurl.com/segmentation-dashboard>

Business Interpretation

Strategic segments provide clarity for communication and execution.

Behavioural clusters reveal underlying structural performance differences.

Used together, they enable:

- Policy-level segmentation (strategic lens)
- Risk/opportunity detection (data lens)

Project artifacts: SQL schema & queries, Python analysis, Tableau dashboard.

Strategic Takeaways

- Revenue is concentrated in specific behavioural clusters
- Discount logic alone is insufficient to segment long-term value
- Hybrid segmentation (rule-based + clustering) strengthens decision-making

Business Takeaways

Strategic segmentation simplifies the landscape.

Behavioural clustering reveals its structure.

Combining both produces a more informed, performance-aware customer strategy.