



Marketing insights

Lack Prep Desioned ▾

100

55

60

15

17

0

Customer Marketing Campaign Analysis: A Data-Driven Approach to Consumer Segmentation and Engagement

Domain: Marketing Analytics

Tools Used: R, dplyr, ggplot2, cluster, factoextra, lubridate

Dataset: [Marketing Campaign \(kaggle\)](#) - by Rodolfo Saldanha



Customer margins

634%
gains

650 hairs

1 Or Cody

Bug Feed

Tes

Bug book

Semaphores



Tatils





Phase 1: Ask

Business Task:

Segment customers based on their demographics, purchasing behavior, and engagement history to support targeted marketing strategies and data-driven personalization.

1. "Who are our most profitable customers, and how can we tailor campaigns to maximize their lifetime value?"
2. "Are our marketing campaigns effectively reaching and engaging different customer age groups?"
3. "Which channels are driving the most engagement — online, offline, or catalog — and does it differ by customer type?"
4. "Are there specific customer segments that are no longer responding to campaigns? What can we do to re-engage them?"
5. "Does customer loyalty or tenure impact how much they spend or how they respond to campaigns?"
6. "How can we prioritize and personalize our marketing strategy based on customer behavior and purchase history?"



Phase 2: Prepare

- Imported data from CSV, verified structure
- Removed Z_CostContact and Z_Revenue (constant values)
- Dropped rows with missing Income values (24 NAs)

Added new features:

- Age, Customer_Tenure (in years)
- TotalSpend, TotalChildren, CampaignsAccepted
- Categorical: AgeGroup, IncomeBracket
- Numeric: EngagementScore



Phase 3: Process

- Cleaned and transformed columns
- Ensured date format consistency
- Normalized numerical values for clustering
- Applied K-Means Clustering ($k = 4$ based on Elbow & Silhouette methods)
- Mapped clusters with behavioural insights



Phase 4: Analyse

We visualized customer behaviour using histograms, bar plots, and heatmaps to identify patterns.

Examined correlations and cluster characteristics

Identified patterns in spending, family size, and marketing response

Cluster Summary:

Cluster	Age Range	Income	Spend	Campaigns	Segment Type
1	36–55	High	High	High	Premium Loyal Customers
2	26–40	Medium	Medium	Moderate	Rising Young Buyers
3	56+	Low	Low	Low	Passive Seniors
4	<35	Low	Low	Low	Dormant Young Segment



Phase 5: Visuals

- Age vs. Spend distributions
- Engagement Score by Income Bracket
- Cluster-wise spend patterns
- Campaign acceptance heatmaps

(All visuals included in the project folder)



Phase 6: Insights & Share



Key Business Insights:

1. High-spend customers (Cluster 1) respond well to multiple campaigns and prefer wine/meat products.
2. Young customers are more likely to engage through web and catalogue channels but spend less.
3. Seniors tend to be under-engaged; reactivation campaigns may be necessary.
4. Customer tenure positively correlates with total spend and loyalty.



Recommendations:

- Personalize campaigns by segment (cluster)
- Focus premium marketing on Cluster 1
- Launch reactivation efforts for Clusters 3 & 4
- Use Engagement Score for targeting and retention

Outcome:

A scalable segmentation model that allows the marketing team to:

Target high-value customers

Reactivate passive segments

Improve ROI through data-backed decisions



Report Compiled

✍️ Authored by: Yashkumar Bilwal

📅 Date: June 2025

🔗 Portfolio: yashbilwal.app

📁 GitHub Repo: github.com/yashbilwal/marketing-campaign-analysis-r