

Sun Country Airlines

Customer Segmentation Analysis

*Identifying High-Value Segments to Drive Ufly Enrollment
& Direct Booking Growth*

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Project Background & Context

Project Background

Who: Sun Country Airlines, a Minneapolis-based low-cost leisure carrier founded in 1983. One of the last independent US airlines, serving mostly warm-weather destinations from Minneapolis-St. Paul (MSP).

Problem: By late 2014, leadership found that customer assumptions inside the company were entirely anecdotal, with no dedicated analyst on staff to validate them.

Goal: Turn booking and loyalty data into validated customer profiles to grow Ufly enrollment, shift bookings to the direct channel, and build vacation packages competitors could not easily replicate.

Key Terms

Ufly Rewards: Sun Country's frequent flyer program with Standard and Elite tiers. Members earn points redeemable for flights. Only ~21.5% of customers in our dataset are enrolled — the core loyalty enrollment opportunity.

PNR (Passenger Name Record): A unique booking record identifier. PNRLocatorID in our dataset tracks each individual booking transaction.

Booking Channel: How a ticket was purchased. Key channels: SCA Website (direct), Outside/3rd-Party (Expedia, Google Flights), Reservations (phone), Tour Operator, SY Vacation.

Recommendations

Launch Direct Booking & Ufly Enrollment Campaign

- C0 books direct on SCA.com but 99.9% are non-Ufly. Trigger a post-booking Ufly enrollment prompt with a first-flight miles bonus.
- C1 books exclusively via 3rd-party platforms. Offer a guaranteed 5-10% discount for booking direct to migrate them to the higher-margin channel.

Ufly Elite Upgrade Campaign for Loyal Frequent Fliers

- C3: 99% are already Ufly Standard and have the highest ticket spend of any segment. Gate Elite perks (priority boarding, free checked bag) behind a spend threshold to lock in retention before a competitor does.

Cross-Sell Outbound Vacation Packages at Checkout

- C4 flies home to MSP on Sun Country one-way; 30% already have Ufly Standard. A 'Plan your next escape' widget at checkout converts one-way buyers into round-trip vacation package customers.

Executive Summary

15,144

Customer Records Analyzed

5

Distinct Segments
Identified (K-Means)

52.7%

Customers in Highest-Priority
Segments

- Analyzed 15,144 Sun Country bookings (2013–2014) across 90 features to identify 5 actionable customer segments using K-Means clustering.
- Cluster 0 (MSP Direct Bookers) and Cluster 1 (MSP Deal Seekers) make up 52.7% of all customers, both 99%+ non-Ufly members, representing the largest loyalty enrollment opportunity.
- Three targeted campaigns address leadership's stated goals around Ufly enrollment, direct channel growth, and vacation package differentiation.

Defining the 5 Segments

C0: MSP Direct Bookers

MSP locals who book on SCA.com. 99% non-Ufly – untapped loyalty opportunity.

27.3%

C1: MSP Deal Seekers

Same traveler as C0 but books exclusively via 3rd-party platforms.

25.4%

C2: Inbound Visitors

Fly INTO Minneapolis. Low spend, one-way dominant, transactional.

16.1%

C3: Loyal Frequent Fliers

99% Ufly Standard. Highest ticket spend and longest booking lead time.

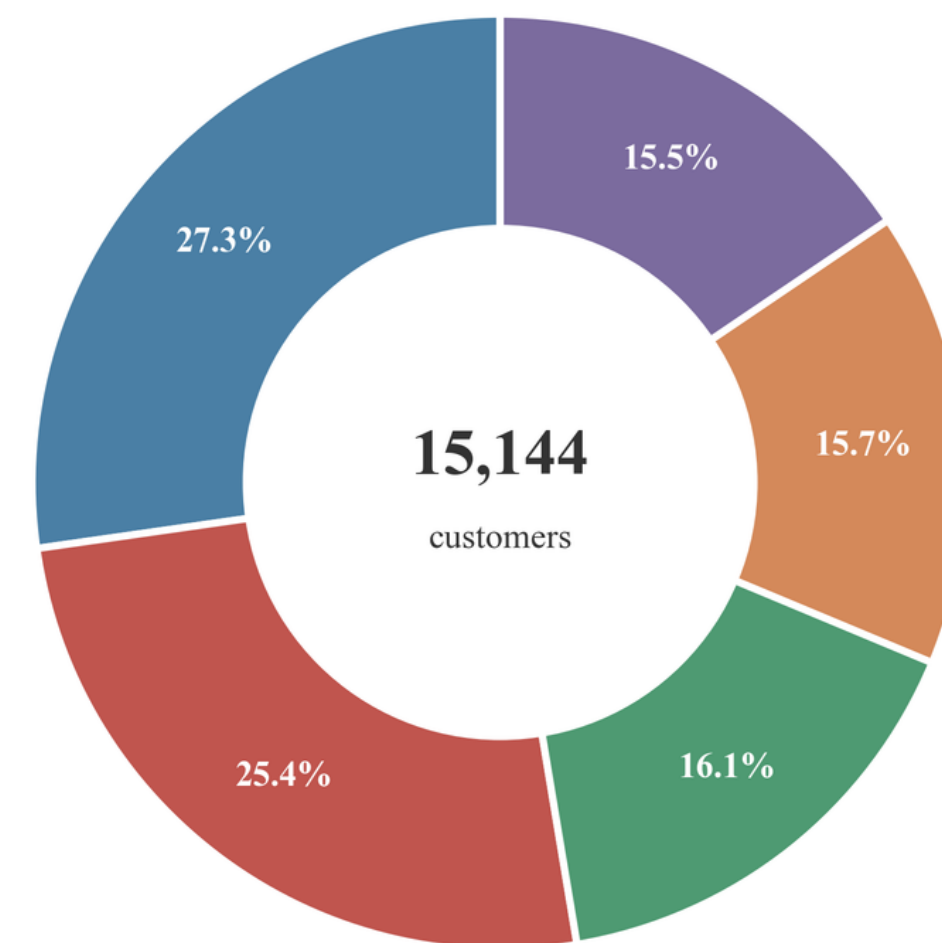
15.7%

C4: Returning Home Fliers

MSP residents flying home. 30% Ufly Standard – partial loyalty conversion.

15.5%

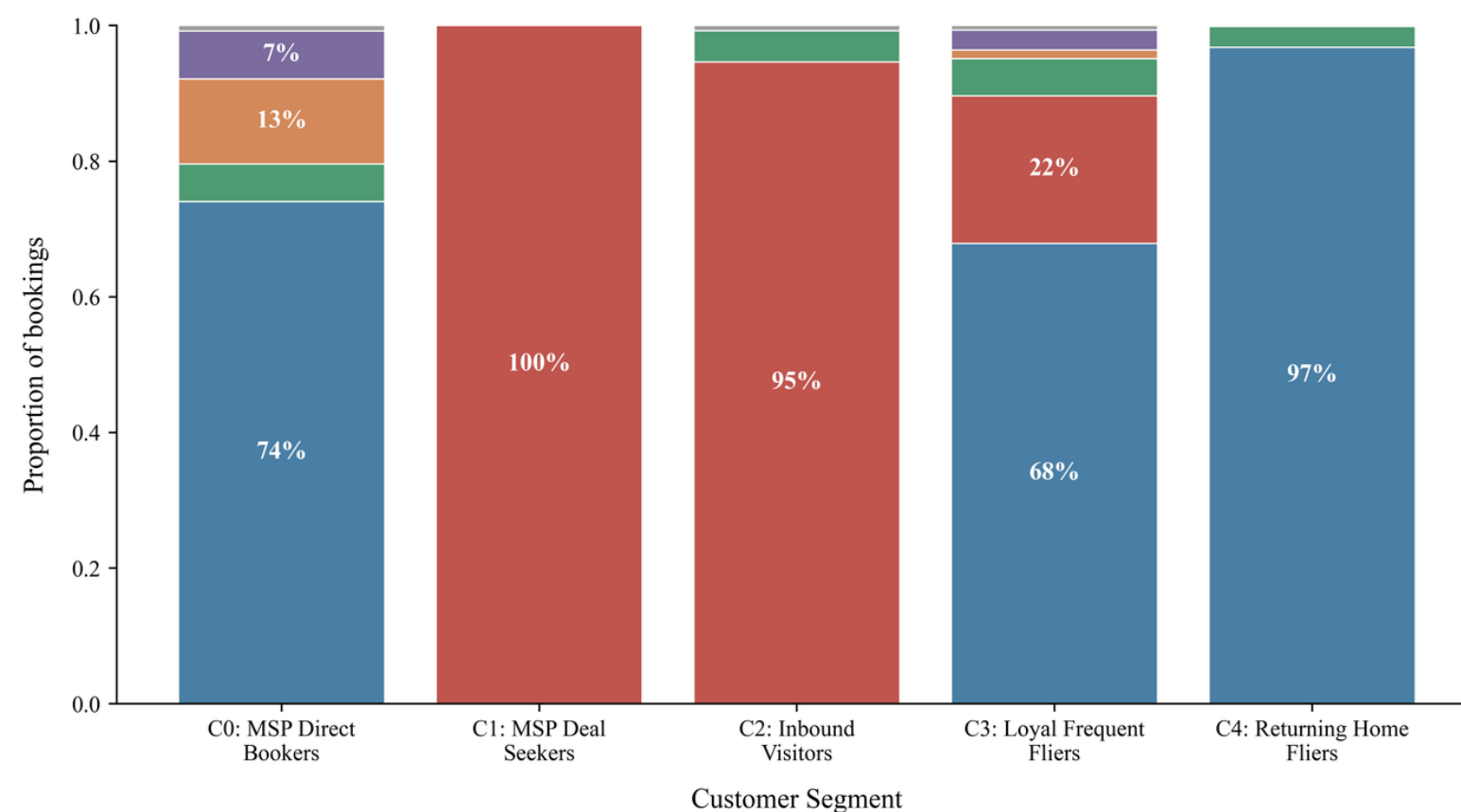
Customer Segmentation Overview
K-Means Clustering (k = 5)



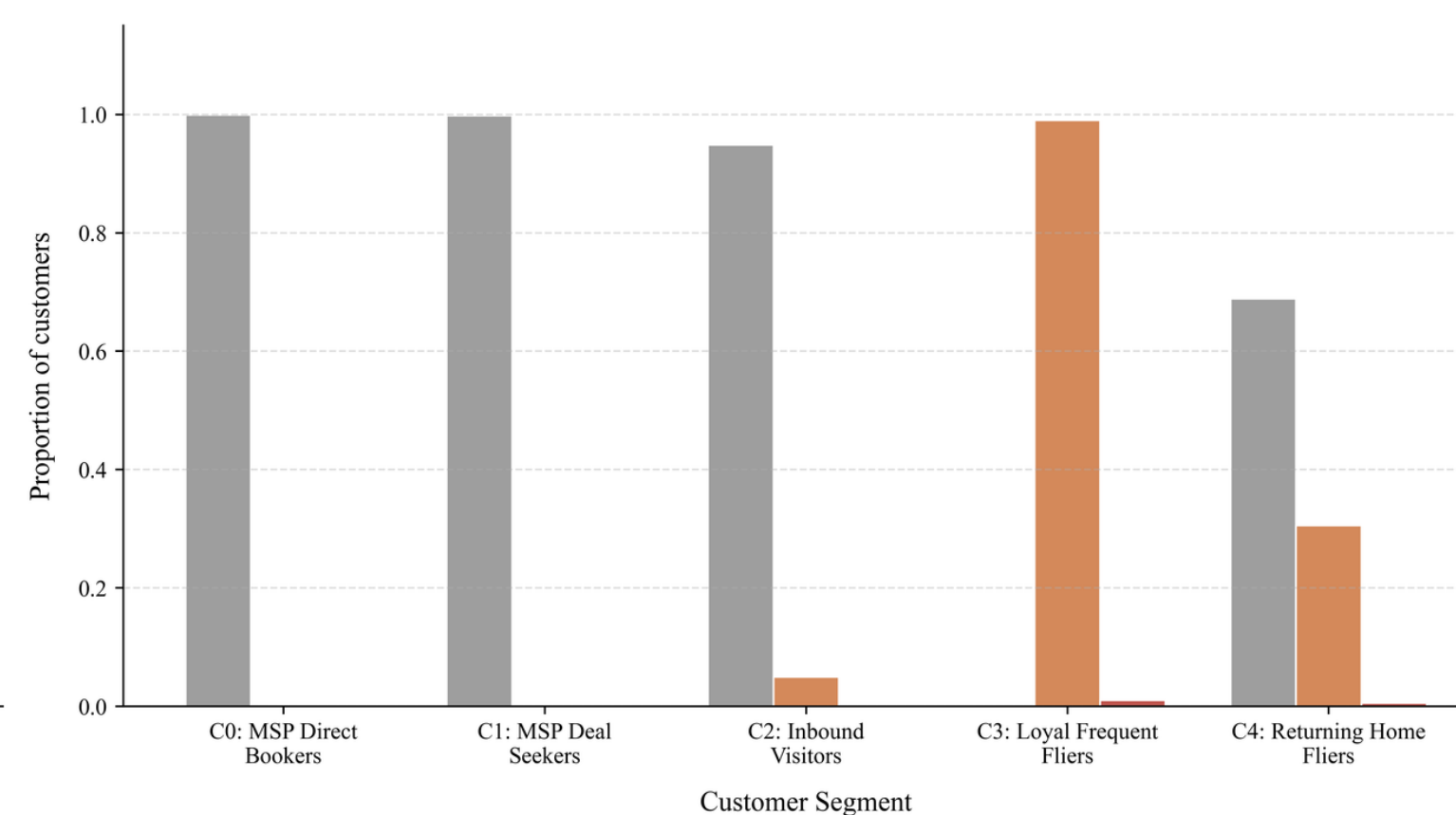
■ C0: MSP Direct Bookers
 ■ C2: Inbound Visitors
 ■ C4: Returning Home Fliers
■ C1: MSP Deal Seekers
 ■ C3: Loyal Frequent Fliers

C0 & C1: High-Priority Opportunities

Booking Channel Composition



Ufly Loyalty Program Status



C0 Insight

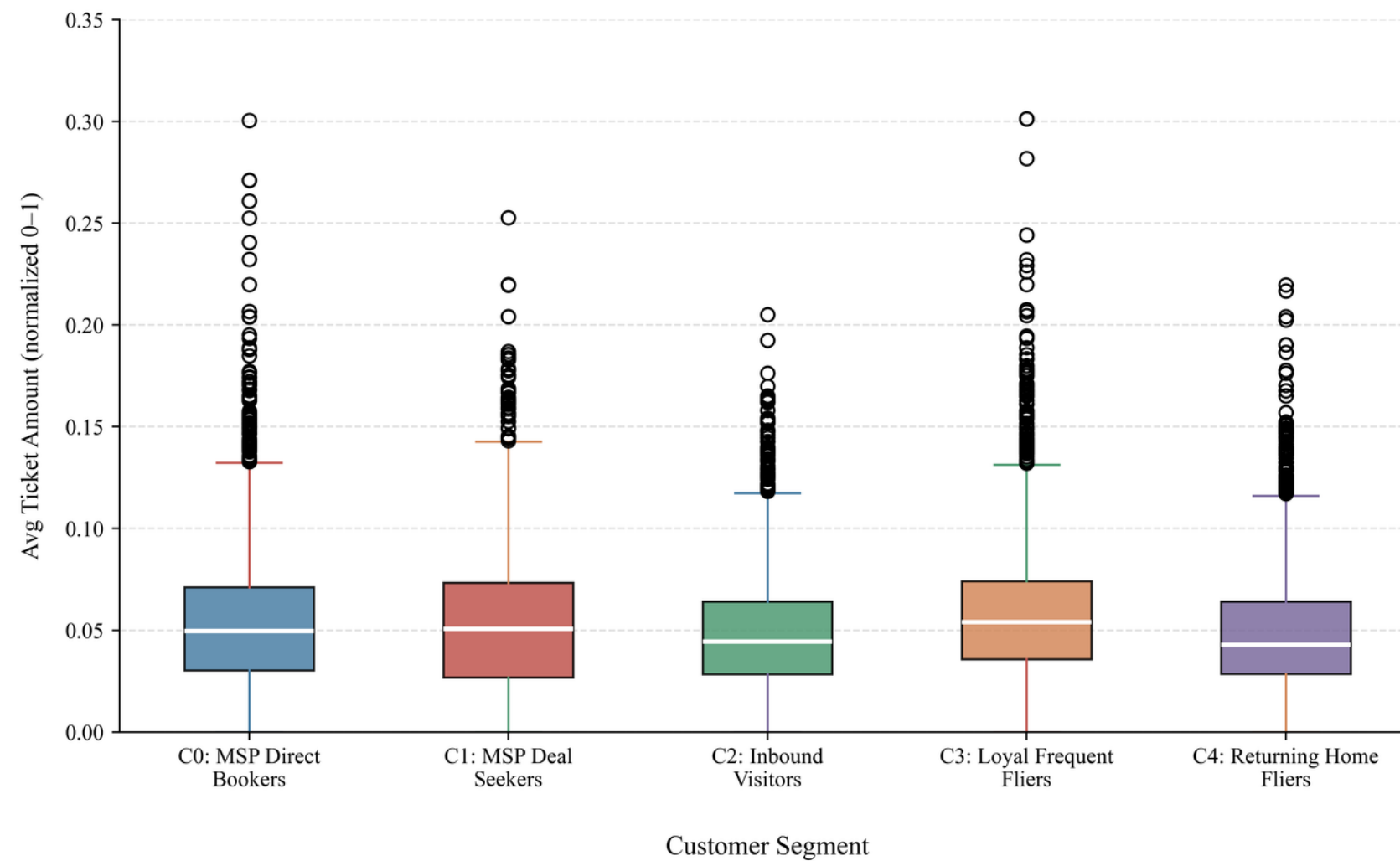
C0 books direct (74%) but 99.9% are non-Ufly. A post-booking enrollment prompt with a first-flight miles bonus is low-friction and high-conversion.

C1 Insight

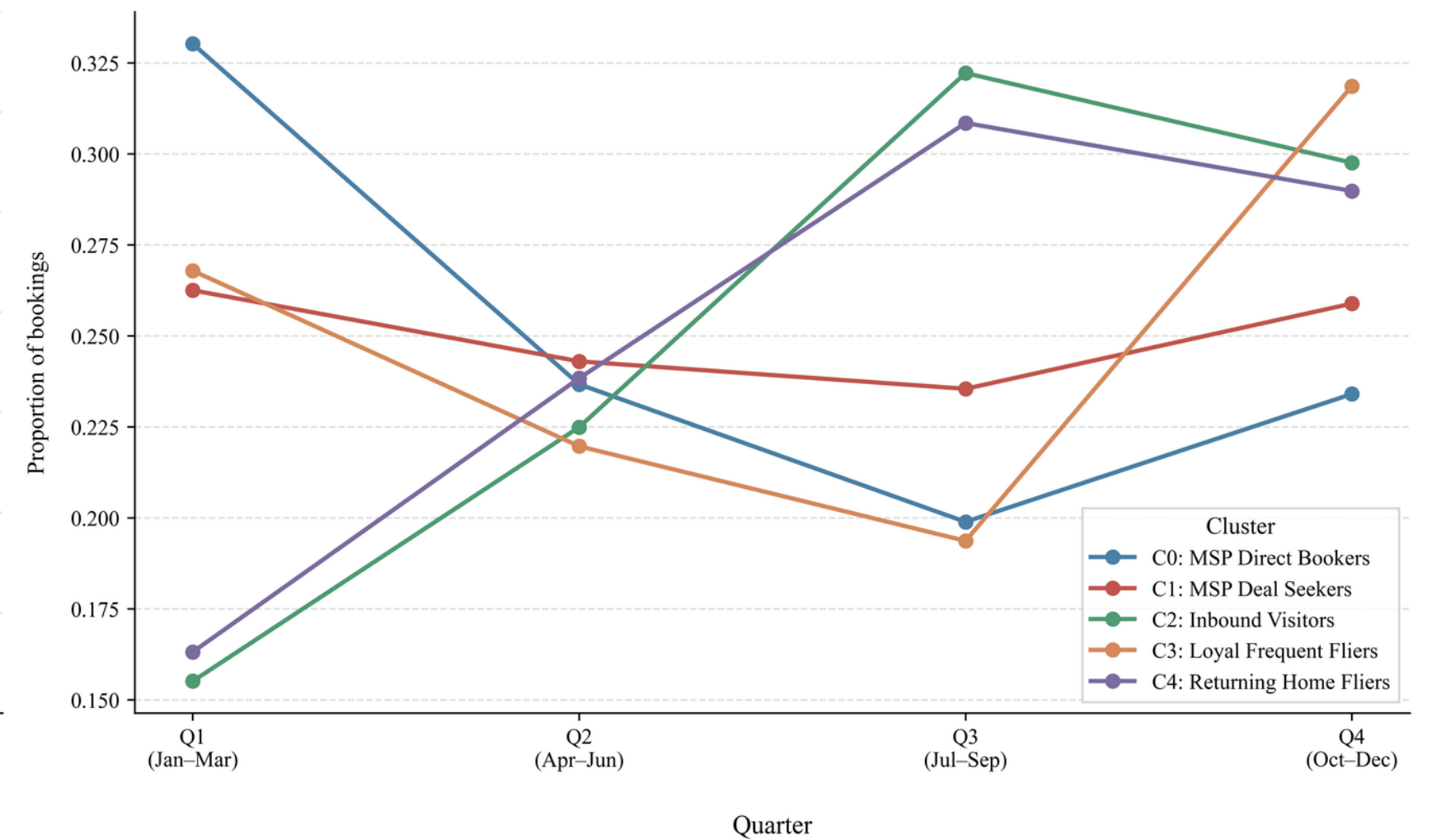
C1 is the same traveler but shops exclusively on 3rd-party platforms (100%). A guaranteed 5-10% direct-booking discount gives them a concrete reason to switch channels.

C3: Most Valuable Customers

Ticket Price Distribution by Segment



Travel Seasonality by Segment



C3

Highest Avg Ticket
Price of Any Segment

99%

Already Ufly Standard
Members

Q4

Peak Travel Season
(Holiday & Year-End)

C2 & C4: The MSP Mirror

95%

C2 flies INTO Minneapolis

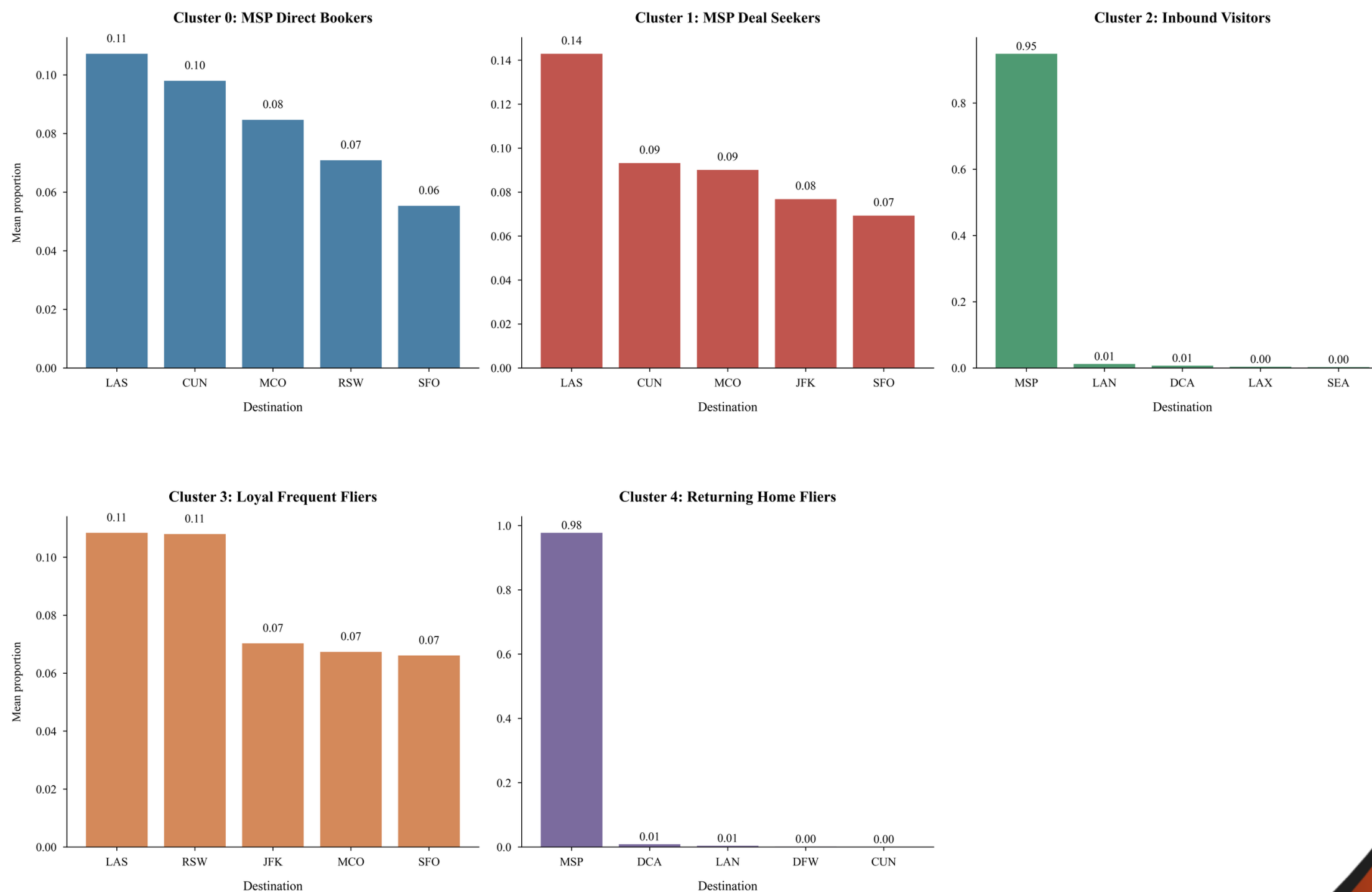
98%

C4 flies HOME to Minneapolis

Key Insights:

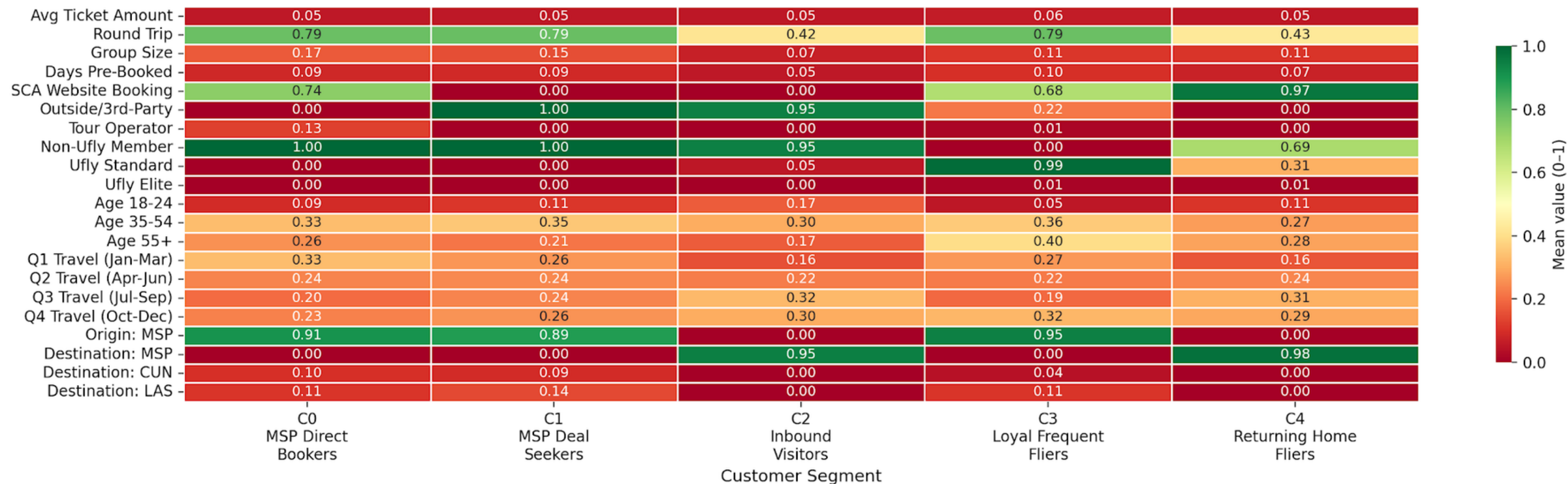
- C2 and C4 are mirror segments. One flies into Minneapolis, one flies home. Together they represent a round-trip cross-sell opportunity Sun Country is currently leaving on the table.
- At checkout, C4 should be shown an outbound vacation package offer, converting one-way home buyers into round-trip vacation customers.

Top 5 Destinations by Customer Segment



Segment Feature Comparison

Feature Means Across All 5 Customer Segments



C3 Insights

Scores highest on Ufly Standard (0.99), Days Pre-Booked (0.10), and Age 55+ (0.40), confirming it as Sun Country's most loyal, most planned, and most premium segment.

C1 Insights

Only segment with 100% Outside/3rd-Party booking, making it the clearest target for direct channel migration in the entire dataset.

Action Priority Summary

HIGH

C0 + C1 | 52.7% of customers

Launch Direct Booking & Ufly Enrollment Campaign

Largest addressable market with near-zero Ufly penetration. Highest conversion potential of any segment.

MED

C3 | Loyal Frequent Fliers | 15.7%

Ufly Elite Upgrade Campaign

Already loyal — ROI is retention, not acquisition. Vulnerable to a competitor Elite offer.

MED

C4 | Returning Home Fliers | 15.5%

Cross-Sell Outbound Vacation Packages

30% already Ufly Standard. Cross-sell an outbound vacation package at checkout.

LOW

C2 | Inbound Visitors | 16.1%

Round-Trip Bundle Offer

Transactional, lowest spend, least brand-attached. A round-trip bundle offer is worth testing but not the core focus.

Methodology

1. Data Preparation

15,144 records × 90 pre-normalized features. Excluded uid and PNRLocatorID identifiers. No missing values — dataset clean and ready for modeling.

2. Exploratory Data Analysis

MSP dominated destinations at ~30.5%. Booking channel split (~46% SCA website vs. ~44% outside) hinted at two distinct acquisition profiles before any model was run.

3. Choosing k = 5

Tested k=2 through k=10. Elbow method showed a clear inflection at k=5. Silhouette analysis confirmed k=5 as the optimal balance of fit and business interpretability.

4. K-Means Clustering

Final model fit with k=5, random_state=42, n_init=10. Clusters reordered by size. Centroids translated directly into segment profiles with actionable business meaning.

Long-Term Data Recommendations

1. Track Ancillary Spend

Link bag fees, seat upgrades, and travel insurance to customer records. Adds a revenue-sensitivity dimension currently invisible in the data, separating high-value from budget-conscious travelers within each segment.

2. Capture Post-Flight NPS / CSAT

A satisfaction score tied to each UID would reveal which segments are at churn risk vs. brand advocates, enabling proactive retention before a competitor makes an offer.

3. Monitor Loyalty Conversion Events

Track whether Ufly sign-ups happen after post-booking emails, in-flight offers, or post-trip surveys. Identifies which conversion tactics work per segment, enabling smarter campaign targeting.

4. Enrich Demographic & Behavioral Data

Income proxies (zip+census tract), device type at booking (mobile vs. desktop), and return visit frequency would sharpen segment distinctiveness and enable more precise personalization.

From Data to Action: Three Campaigns

1

Grow Ufly Enrollment

C0 and C1 represent 52.7% of customers with near-zero loyalty penetration. The enrollment opportunity is immediate and low-friction.

2

Shift Bookings to the Direct Channel

C1's 100% third-party booking rate is a margin problem with a clear fix. A direct-booking discount migrates them to the higher-margin SCA.com channel.

3

Differentiate Vacation Products

C3 and C4 are natural targets for premium packages. They already fly Sun Country, they just need a reason to spend more and book round-trip.