

# Executive Summary – Travel Tide Customer Segmentation

## Business Context

Travel Tide operates in a highly competitive digital travel market where **customer retention and personalization** are critical for sustainable growth. Data-driven insights into customer behavior are essential to improve engagement and optimize marketing investments.

## Objective

The objective of this project was to **identify actionable customer segments** based on behavioral and transactional data to support **management decision-making**.

## Approach

- Integration and preparation of user, session, and trip data
- Feature engineering capturing engagement, booking behavior, and cancellations
- Dimensionality reduction using **PCA**
- Customer segmentation with **K-Means**, validated by the **Silhouette Score**

## Key Insights

- Customers cluster into **clearly distinct segments** with consistent behavioral patterns
- Segments differ mainly in engagement intensity, booking frequency, and cancellation behavior
- Results show four distinct clusters that can be matched with individual perks
- Cluster 0: Premium Travelers → 1 night free hotel with flight
- Cluster 1: Deal Seekers → exclusive discounts
- Cluster 2: Undecided Travelers → no cancellation fees
- Cluster 3: Frequent Travelers → free checked bag or free hotel meal

## Business Value

The segmentation enables: - **Targeted and personalized marketing initiatives** - Improved **customer retention and lifetime value** - More efficient **allocation of marketing and incentive budgets**

## Conclusion

This project demonstrates how **machine learning-based customer segmentation** can be translated into **concise, decision-ready insights**. The results provide Travel Tide with a scalable foundation for data-driven customer strategy and personalization.