Customer Engagement & Product Utilization Analytics for Retention Strategy

Abstract

Customer churn remains a major challenge for banks despite strong financial indicators among customers. This study reframes churn analysis from a demographic-driven approach to a behavioral and engagement-focused perspective. Using customer engagement, product utilization, and relationship strength metrics, the analysis identifies key drivers of retention and highlights silent churn risks among premium customers.

1. Introduction

Traditional churn models rely heavily on demographic and financial attributes such as age, salary, and account balance. However, modern banking behavior shows that engagement and relationship depth play a more decisive role in customer retention. This project analyzes churn through customer behavior and product usage patterns.

2. Problem Statement

Banks often lack clarity on which customer behaviors directly influence retention. High-balance customers are frequently assumed to be loyal, leading to generic retention strategies that fail to address disengagement-driven churn.

3. Dataset Description

The dataset contains 10,000 European bank customers with attributes covering demographics, financial status, engagement indicators, and churn labels. Key variables include IsActiveMember, NumOfProducts, Balance, and Exited.

4. Methodology

The analysis followed a structured approach including data validation, exploratory data analysis, engagement segmentation, product utilization assessment, financial commitment analysis, and construction of a relationship strength index to quantify customer loyalty.

5. Engagement Classification

Customers were segmented into four engagement profiles: Active Engaged, Active Low Product, Inactive High Balance, and Inactive Disengaged. This classification revealed significant churn variation across behavioral segments.

6. Product Utilization Analysis

The analysis showed that single-product customers exhibit the highest churn rates, while customers using two products demonstrate the strongest retention. Excessive product usage was associated with increased dissatisfaction.

7. Relationship Strength Index

A composite relationship strength score was created using activity status, product count, and credit card ownership. Higher relationship strength scores were strongly associated with lower churn probability.

8. Key Findings

Engagement is a stronger predictor of churn than financial balance. High-balance inactive customers represent silent churn risks, and optimal product depth significantly improves retention outcomes.

9. Business Recommendations

Banks should focus on engagement-driven retention strategies, promote optimal product bundling, proactively monitor inactive premium customers, and adopt relationship strength as a core retention KPI.

10. Conclusion

This study demonstrates that customer churn can be effectively addressed through behavioral analytics and relationship-focused strategies. By shifting focus from demographics to engagement, banks can design more targeted and effective retention initiatives.

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