Customer Engagement and Churn Analysis at DataWave Music

- Prajwol Khadka

Executive Summary

30.0%
Overall Churn Rate

70.0%
Retention Rate

10.03hr
Average Weekly Listening

3.18
Average Satisfaction Score

Key Discovery : The Satisfaction Paradox

•**Expectation-Reality Gap:** Satisfied users may have higher expectations that aren't consistently met

•**Alternative Seeking:** Happy users feel confident exploring competitors

•**Survey Response Bias:** Users who churn might give positive exit surveys

•**Status Quo Bias:** Dissatisfied users stay due to switching costs

Churn Rate by Customer Satisfaction Score
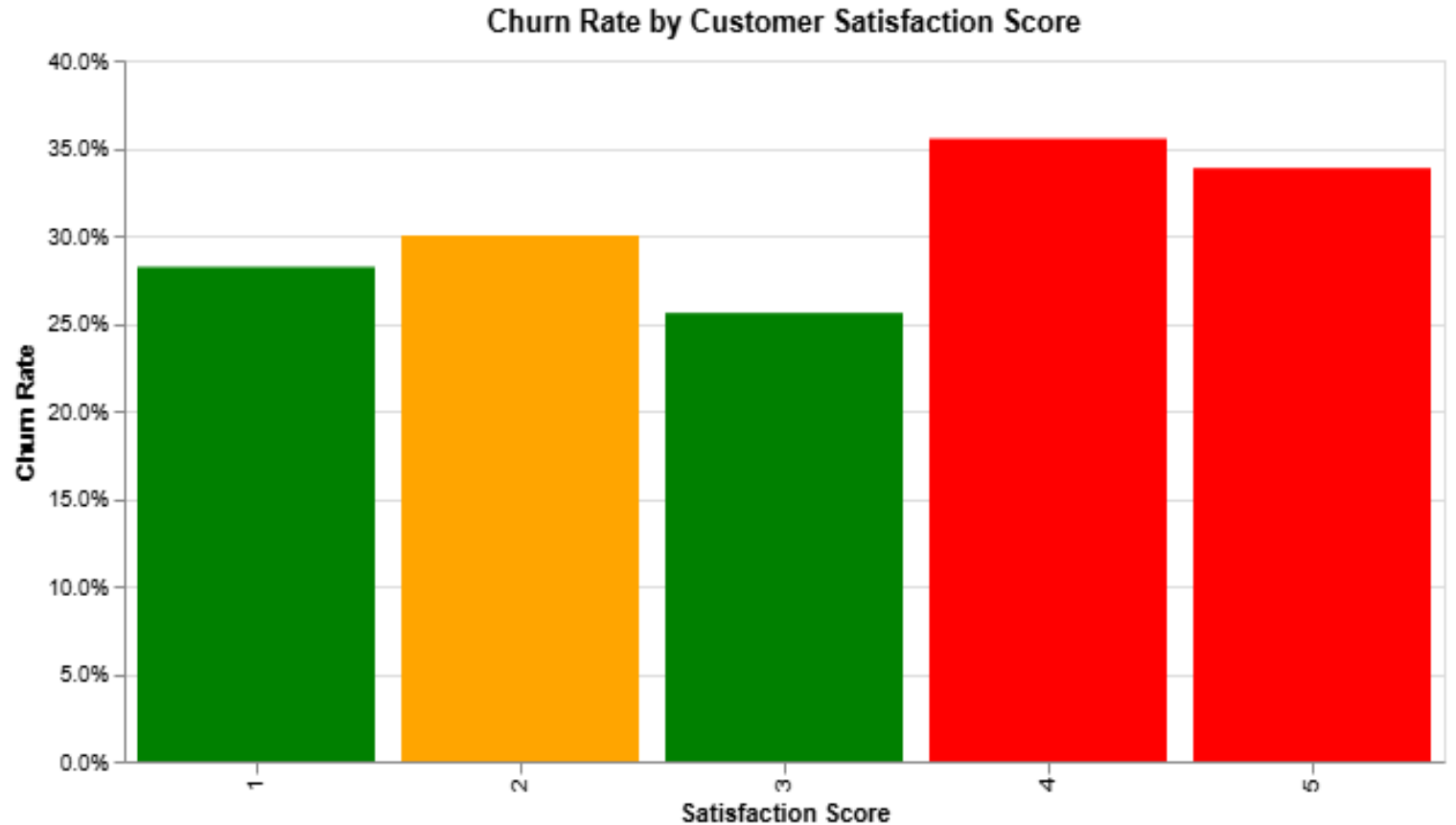
Correlation Analysis Summary

Variable	Correlation with Churn	Interpretation
Total Songs Played	+0.02	Very weak positive correlation
Satisfaction Score	+0.05	Very weak positive correlation
Monthly Fee	-0.02	Very weak negative correlation
Age	-0.01	Very weak negative correlation
Listening Hours	0.00	No correlation with churn

Churn may depend on other factors (e.g., subscription type, region, customer service interactions) rather than simple usage or demographics.

Regional Behavioral Patterns

•**Africa**
  Focus on data-efficient streaming
  Enable offline modes
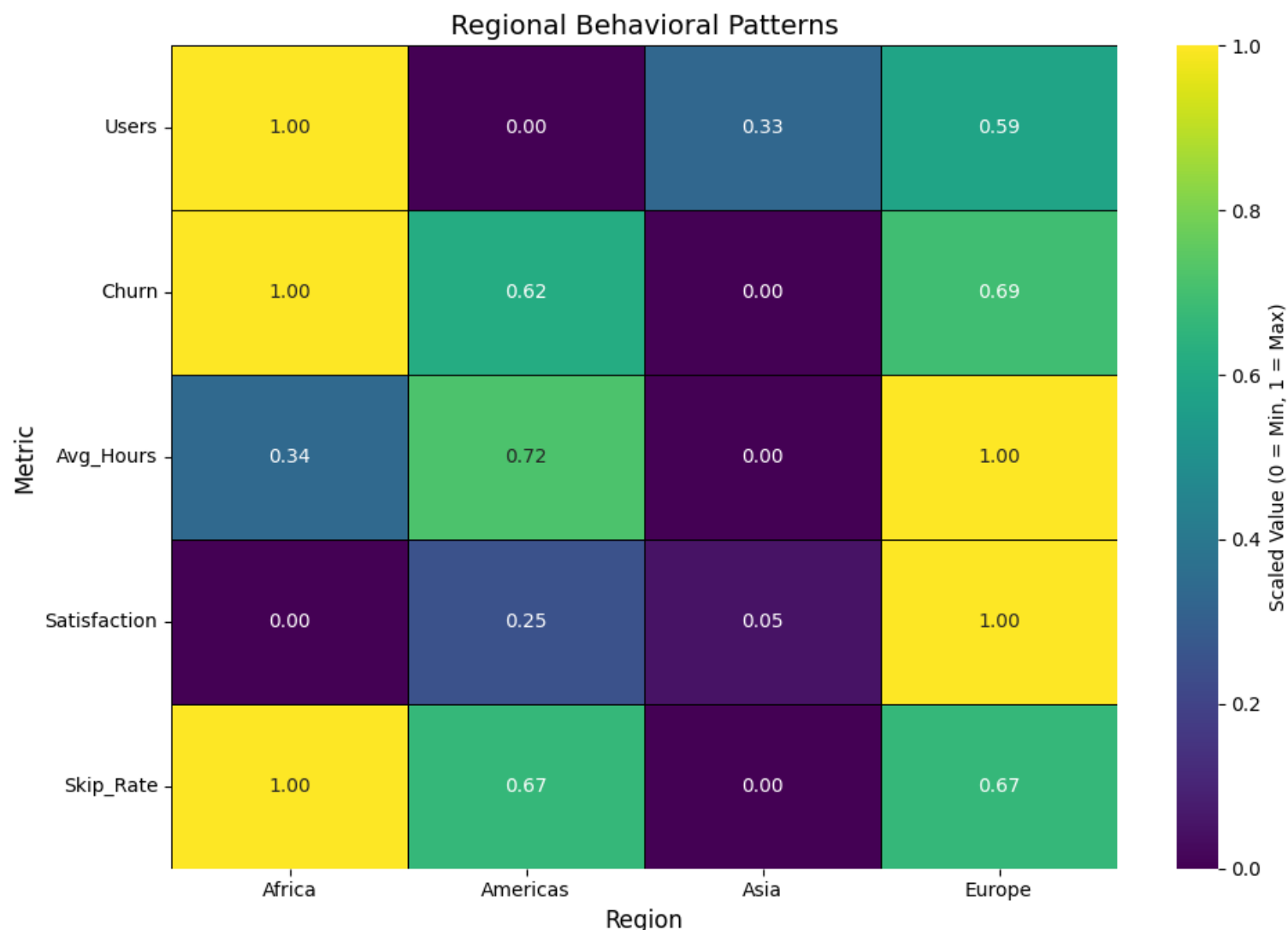 Prioritize mobile optimization
•**South Asia**
  Promote family/group plans
  Introduce loyalty programs
  Invest in local content
•**Europe**
  Maintain high personalization
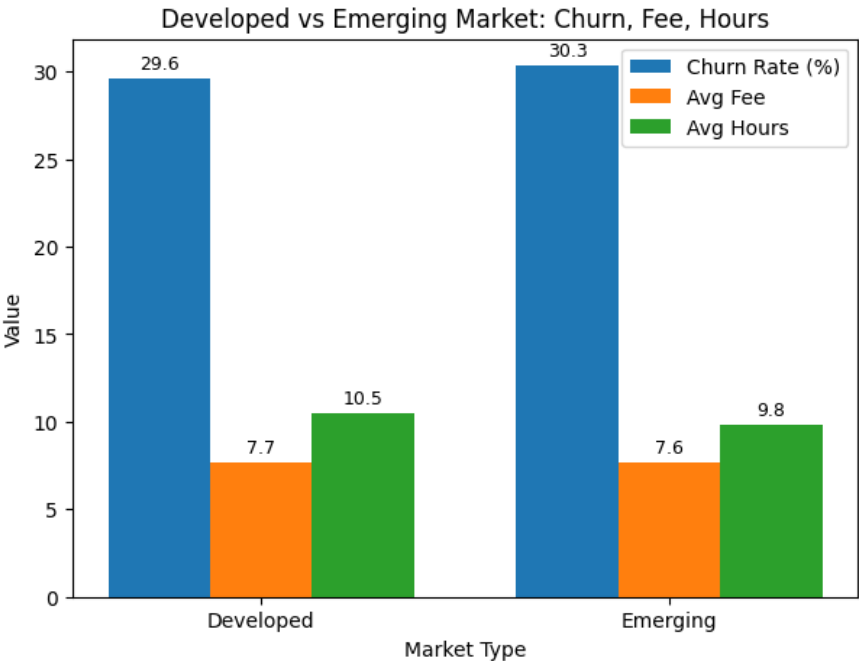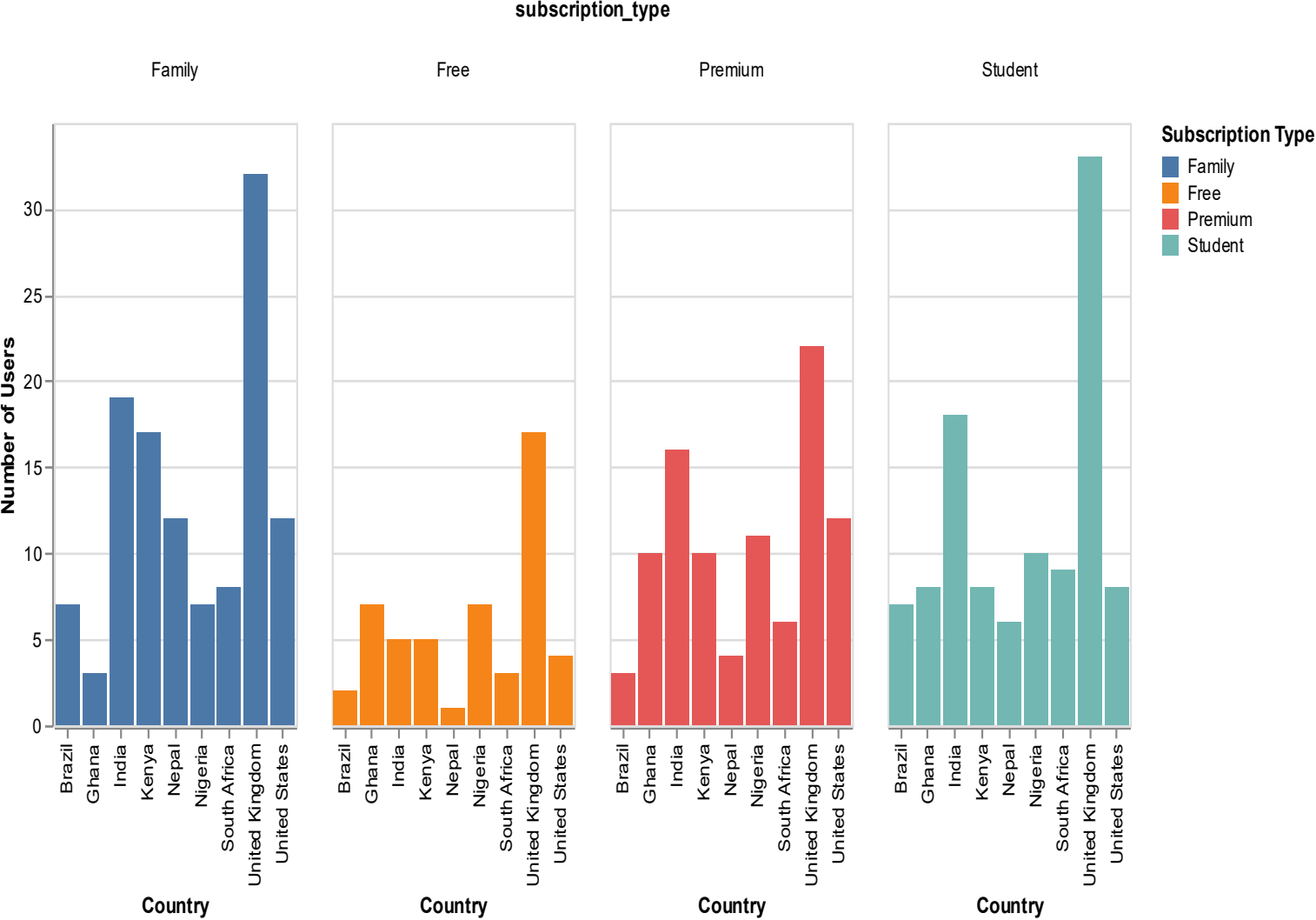 Ensure quality streaming
  Expand diverse music catalog
•**Latin America**
  Offer competitive pricing
  Highlight local artists
  Add social engagement features

Regional Behavioral Patterns

Economic Context: Developed vs Emerging Markets

Number of Users by Country and Subscription Type

Developed vs Emerging Market: Churn, Fee, Hours

Market Type	Churn Rate(%)	Avg Fee	Avg Hours
Developed (US, UK)	29.6	$7.7	10.5hrs
Emerging (Others)	30.3	$7.6	9.8hrs

Cross-Segment Analysis

Age Group	Family (%)	Free (%)	Premium (%)	Student (%)
13-18	38	33	42	29
18-24	37	25	29	41
25-34	28	23	26	19
35-44	24	33	32	28
45-54	22	22	25	32
55-64	37	24	32	38

```python
churn_rate_age_sub = df.groupby(['age_group','subscription_type'])['churned'].mean().round(2) * 100

churn_table = churn_rate_age_sub.unstack()

print(churn_table)

churn_table.plot(kind='bar')

plt.xlabel("Age Group")
plt.ylabel("Churn Rate (%)")
plt.title("Churn Rate by Age Group and Subscription Type")
plt.xticks(rotation=0)
plt.show()
```

```
subscription_type Family  Free  Premium  Student
age_group
13-18              38.0   33.0    42.0     29.0
18-24              37.0   25.0    29.0     41.0
25-34              28.0   23.0    26.0     19.0
35-44              24.0   33.0    32.0     28.0
45-54              22.0   22.0    25.0     32.0
55-64              37.0   24.0    32.0     38.0
```

Pattern Identified: Young teens (13-18) on Premium plans and seniors (55-64) on Student/Family plans show highest churn. Consider age-appropriate plan recommendations.

Temporal Analysis: User Count and Churn Rate by Join Quarter

| Insight 1 2023 Q4	Insight 2 2024 Q2	Insight 3 2023 Q4	Action
Inverse correlation where User Count is decreasing while Churn Rate is rising	**Critical recent issue** with user onboarding or early experience	Number of **new users** has fallen sharply	**Immediately investigate the 2024 Q2 onboarding experience** - understand the cause of the high early churn for this cohort

User Count and Churn Rate by Join Quarter
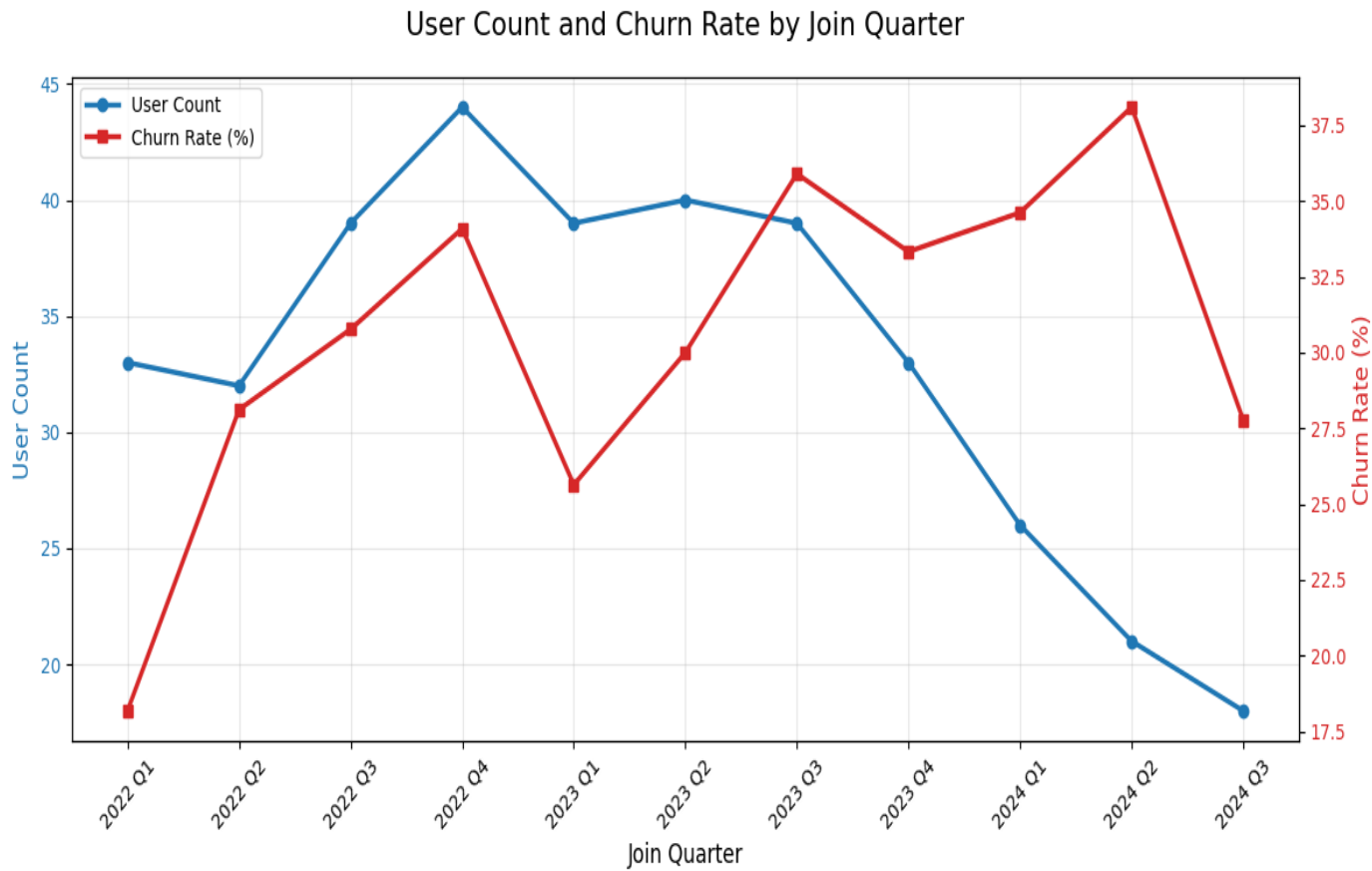
Positive Trend: Newer cohorts show lower churn rates, suggesting improvements in onboarding, product, or user targeting.

Cognitive Biases in User Behavior

Key Insights:

- Status Quo bias is strongest — users stick with familiar plans (98 users, 26.8% of long-tenure users).

- Social Proof and Choice Paralysis significantly influence decisions.

- Sunk Cost bias moderately affects retention (43 users, 72.1% still active).

- Anchoring has the weakest impact.

Cognitive Bias Evidence Strength
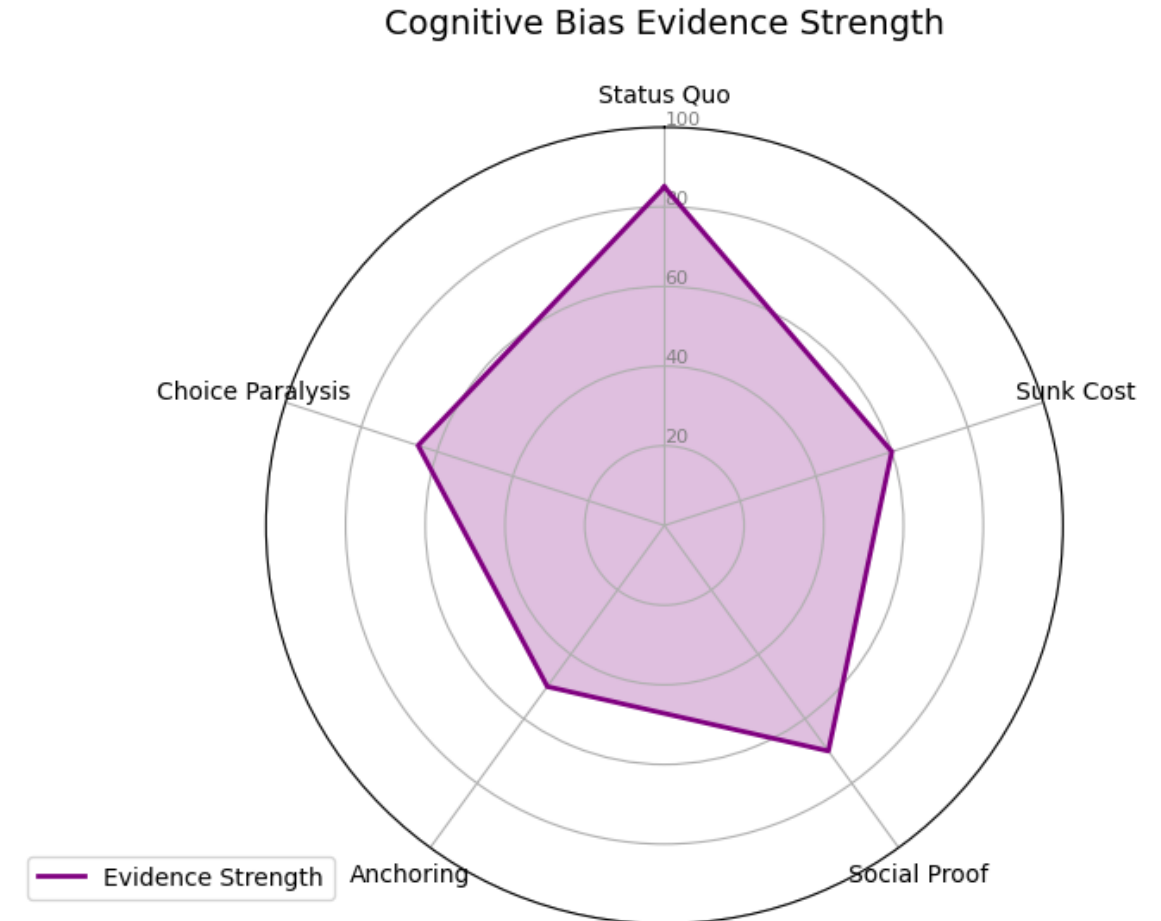
Strategic Recommendations

Resolve the Subscription Mismatch Paradox

Problem: Highest churn exists in specific, seemingly mismatched segments.

Action: Immediately review and re-target 13-18 year-olds on Premium (42% Churn) and 55-64 year-olds on Student/Family plans (38% & 37% Churn).

Goal: Offer age-appropriate, value-aligned plans to these high-risk groups.

Localize & Optimize for Data Constraints

Insight: Simple usage metrics (e.g., Listening Hours) and Satisfaction Score show very weak correlation with churn.

Action: Implement hyper-localized product fixes based on regional patterns.

Priority: Focus on Africa by enabling and promoting offline streaming modes and mobile optimization to solve data-efficiency issues.

Leverage Behavioral Biases for Retention

Insight: Status Quo Bias is the strongest cognitive influence.

Action: Introduce a high-value, longer-term (e.g., Annual) subscription plan to immediately capitalize on the Status Quo effect and lock in users.

Goal: Increase the perceived cost of switching by creating 'sunk cost' features (e.g., personalized archives).

Key Metrics to Track

Churn Rate of the 13-18 Premium Segment
Annual Plan Adoption Rate (Measure of Status Quo utilization)
Africa/Emerging Market Churn Rate

Key Takeaways

Satisfaction ≠ Retention
Don't rely on NPS alone

Culture Matters
Regionalize approach

Bias is Opportunity
Build positive switching cost

Usage ≠ Retention
Look beyond simple usage