

Business Analysis Report: Customer Insights and Churn Analysis

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Business Overview

The telecommunications industry is a rapidly growing sector that is constantly evolving to meet the demands of consumers. As technology advances and user behavior changes, telecom operators face a variety of challenges that can impact their business success. In order to stay competitive and meet customer needs, it is important for telecom companies to regularly analyze their data to identify relevant problems and opportunities for improvement. The aim of this project is to explore the telecom data and find relevant problems faced by telecom operators. By conducting an exploratory data analysis (EDA) on a large volume of telecom data, we can gain valuable insights into user behavior, network performance, customer demographics, and more. Through this analysis, we hope to identify potential areas for improvement, such as improving customer satisfaction, optimizing network performance and increasing revenue through targeted marketing efforts.

The insights gained from this project can help telecom operators make informed decisions about their business strategy, enabling them to better meet the needs of their customers and stay competitive in the market.

1. Executive Summary

This report analyzes key trends in customer behavior, revenue generation, and churn patterns for the telecom company. It identifies correlations between key variables, uncovers reasons for churn, and highlights potential areas for improvement. Based on these findings, recommendations are provided to enhance customer retention, optimize pricing strategies, and improve service quality.

2. Key Observations and Insights

2.1 Customer Behavior Correlations

- **Age and Number of Dependents:** A **moderate positive correlation (0.68)** suggests that older customers tend to have more dependents.
- **Total Recharge Data & ARPU (5G & 4G):** Both **5G (0.66)** and **4G (0.67)** ARPU exhibit a **moderate correlation** with total recharge data, indicating that customers who spend more on data tend to generate higher revenue.
- **4G and 5G Data Usage:** A **moderate correlation (0.63)** between 4G and 5G data volumes suggests that heavy 4G users are also more likely to use 5G.
- **ARPU (5G & 4G):** A **strong correlation (0.75)** between 4G and 5G ARPU implies that customers investing in 5G services are also spending on 4G.

2.2 Churn Analysis and Customer Satisfaction

- **Churn Reasons:**
 - The most common reason for churn is categorized as **"Unknown,"** highlighting a **lack of proper tracking mechanisms** for customer behavior and dissatisfaction.
 - Other significant churn reasons include **price sensitivity, service dissatisfaction, and network reliability.**
- **Customer Satisfaction Scores:**
 - Churned customers with **negative ARPU** have an **average satisfaction score of 2**, indicating **dissatisfaction with telecom services.**
 - This suggests a need to improve service quality and customer support to prevent revenue loss.

2.3 ARPU and Revenue Generation Challenges

- **Customers with Negative ARPU:**
 - **17% of the customer base** has **negative ARPU**, meaning they are not generating revenue.
 - **95.2% of these customers have not churned**, while **4.8% have churned.** This suggests that **negative ARPU alone is not a strong churn predictor**, but further analysis is needed to understand its causes.
 - Possible reasons include **inactive accounts, delinquent accounts, or outstanding balances.**

2.4 Seasonal Churn Trends

- The **highest churn rate** is in **January (36.44%)**, followed by **February (16.57%)** and **March (14.84%).**
- The **lowest churn rate** occurs in **July (1.87%)**, indicating a **seasonal trend where churn is highest at the beginning of the year and declines gradually.**

3. Identified Issues

1. **Lack of Customer Churn Insights:** The high percentage of churn classified as **"Unknown"** suggests **inadequate tracking and analysis of customer exits**.
2. **Revenue Leakage from Negative ARPU Customers:** A significant **17% of the customer base is not generating revenue**, which may indicate poor engagement or billing inefficiencies.
3. **Seasonal Churn Trends Not Addressed:** The spike in churn during **January-March** suggests potential **seasonal factors impacting customer retention**.
4. **Customer Dissatisfaction with Service & Pricing:** Low satisfaction scores among churned customers suggest a **gap in service quality, competitive pricing, and support mechanisms**.

4. Suggested Methodologies & Solutions

4.1 Enhancing Churn Prediction and Understanding Customer Behavior

- Implement **machine learning-based churn prediction models** using historical data on customer behavior, ARPU trends, and service usage.
- Conduct **exit interviews and surveys** to gather qualitative insights from churned customers.
- Improve **customer feedback mechanisms** to classify churn reasons more accurately.

4.2 Addressing Negative ARPU & Revenue Optimization

- Conduct **segmentation analysis** to identify customers with **prolonged inactivity, delinquent payments, or revenue leakage issues**.
- Implement **targeted re-engagement campaigns** (discounts, customized plans) to convert negative ARPU customers into active revenue generators.
- Introduce **automated payment reminders and credit recovery mechanisms** to minimize revenue loss.

4.3 Managing Seasonal Churn Trends

- Analyze **historical seasonal trends** and develop **targeted retention strategies** for high-churn periods (e.g., offering incentives during January-March).
- Introduce **loyalty programs** or discounted renewal plans for at-risk customers.
- Leverage **proactive customer outreach** before peak churn periods to strengthen customer relationships.

4.4 Improving Customer Satisfaction & Service Quality

- Conduct **sentiment analysis** on customer complaints and support interactions to pinpoint dissatisfaction areas.
- Optimize **network reliability and service quality** based on customer feedback.
- Introduce **AI-driven chatbots and self-service options** for faster issue resolution.

5. Conclusion

This analysis highlights key areas for improvement, including **better churn tracking, revenue optimization, customer satisfaction enhancement, and seasonal churn management**. By implementing **data-driven insights and targeted retention strategies**, the company can strengthen customer relationships, maximize revenue, and reduce churn effectively.