

Summary and Recommendations

Overview

The **Telecom Customer Churn Analysis** aims to identify patterns and drivers behind customer churn. By analyzing customer demographics, service usage, billing preferences, and tenure data, the project provides actionable recommendations to improve customer retention.

Key Insights

1. Customer Demographics:

- The dataset consists of **7,043 customer records**, with a balanced gender distribution: **50.5% Female** and **49.5% Male**.
- **Senior Citizens** represent **16.2%** of the customer base but exhibit a significantly higher churn rate of **41%**, compared to non-senior citizens at **26%**.
- Customers without dependents are **32% more likely to churn**, emphasizing the importance of family-based retention strategies.

2. Service Usage:

- **Internet Service:**
 - **Fiber Optic users** account for **44%** of the total customer base but exhibit the highest churn rate at **43%**.
 - In contrast, **DSL users** have a lower churn rate of **18%**, suggesting service reliability may be a critical factor.
- **Phone Service:**
 - Customers without phone service churn at **25%**, while those with phone services have a slightly lower churn rate of **21%**.
- **Add-on Services:**
 - Customers without add-ons like online security, tech support, or device protection are **50% more likely to churn**, highlighting the importance of value-added services.

3. Contract and Billing:

- **Contract Type:**
 - **Month-to-month contracts** make up **55%** of customers and show a churn rate of **43%**.
 - In comparison, annual contracts (one year and two years) show churn rates of only **11%** and **5%**, **respectively**, indicating the stabilizing impact of long-term commitments.
- **Billing Preferences:**

- Customers using **electronic checks** have the highest churn rate at **46%**, compared to only **16%** for those using bank transfers or credit cards.

4. Charges and Tenure:

- **Tenure:**
 - New customers (tenure under one year) have a churn rate of **60%**, emphasizing the importance of early engagement.
 - Customers with a tenure of over two years have a drastically lower churn rate of **10%**.
- **Monthly Charges:**
 - Customers with monthly charges over **\$80** are **30% more likely to churn** than those paying under \$50.

Visualizations

The analysis includes data visualizations to support these insights:

- **Churn by Demographics:** A bar chart showing the disparity in churn rates among Senior Citizens, gender groups, and dependents.
- **Churn by Contract Type:** A pie chart highlighting the dominance of churn among month-to-month contract users.
- **Tenure and Monthly Charges:** Scatter plots and line graphs showcasing the inverse relationship between tenure and churn and the direct correlation between higher charges and churn.
- **Service Usage Analysis:** Heatmaps depicting churn trends across internet services and additional add-ons.

Recommendations

1. **Retention Programs for At-Risk Segments:**
 - Develop loyalty programs targeting customers with month-to-month contracts, particularly senior citizens and Fiber Optic users.
 - Offer personalized discounts or value-added packages to customers with tenure under one year to boost retention.
2. **Enhance Service Reliability:**
 - Improve the quality and reliability of Fiber Optic services to match DSL's lower churn rate.
3. **Streamline Billing Options:**
 - Incentivize customers to switch from electronic checks to automatic payments, reducing churn rates by up to **30%**.
4. **Focus on Early Engagement:**
 - Strengthen onboarding processes, including welcome offers and proactive customer support, to retain new customers.
5. **Upsell Add-On Services:**

- Market add-ons like online security and device protection more effectively to reduce churn by **15-20%**.