

Executive Summary: Telco Customer Churn Analysis

This project provides an in-depth exploratory analysis of Telco's customer dataset to uncover the factors that influence customer churn and identify actionable insights to enhance customer retention strategies.

1. Churn Overview

- **Overall churn rate:** Approximately **26.5%** of the customers have churned.
 - Customers who churned are more likely to be on **month-to-month contracts** and using **fiber optic internet services**.
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2. Key Insights

a. Customer Demographics

- **Senior Citizens** represent **16%** of the customer base, but their churn rate is disproportionately higher at **41%**.
- **Gender** appears neutral: **Men and women churn at similar rates** (around **27%** each).
- **Partner status:**
 - Customers **without a partner** have a churn rate of **32%**.
 - Customers **with a partner** have a churn rate of only **20%**.
- **Dependents:**
Customers **without dependents** are **more than twice as likely to churn** compared to those with dependents (churn rates: **32%** vs **15%**).

b. Services & Internet Features

- **Internet Service:**
 - **Fiber optic** users experience the highest churn rate at **42%**.
 - **DSL** users have a relatively lower churn rate at **19%**.
 - Customers **without internet service** have the lowest churn at **7%**.
- **Additional services impact:**
 - Customers **without Online Security** or **without Tech Support** are **more than twice** as likely to churn compared to those who have these services.
 - E.g., churn rate without Tech Support: **38%** vs with Tech Support: **15%**.

c. Financial Factors

- **Monthly Charges:**
 - Churners pay significantly higher monthly charges, averaging around **\$75-\$80** compared to non-churners at **\$60-\$65**.
- **Total Charges:**
 - Newer customers (lower total charges) tend to churn more; churn rates are higher among those with lower tenure (≤ 12 months).
- **Tenure Analysis:**
 - Customers within the first **12 months** have a churn rate of nearly **50%**, compared to only **10%** after **3+ years**.

d. Contract and Payment Methods

- **Contract Type:**
 - **Month-to-month** customers have a churn rate of **43%**.
 - **One-year contracts** have a churn rate of **11%**.
 - **Two-year contracts** have the lowest churn rate at just **3%**.
 - **Payment Method:**
 - Customers paying by **Electronic Check** churn at **45%**, the highest across all payment methods.
 - Those paying by **Credit Card** or **Bank Transfer** have a churn rate of around **20%-22%**.
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3. Visual Analysis Highlights

- **Bar plots** were used to illustrate churn distribution across:
 - Gender, senior citizen status, contract types, internet service, payment methods, etc.
 - **Pie charts** clearly depicted the proportion of customers who churned vs stayed.
 - **Histograms** showed monthly charges and tenure variations between churned and retained customers.
 - **Correlation Matrix** suggested strong associations between churn and variables like contract type, internet service, and payment methods.
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4. Recommendations

- Promote **long-term contracts** by offering discounts or loyalty programs.

- Encourage the adoption of **value-added services** like **Tech Support** and **Online Security**.
 - Target **fiber optic** users with retention offers, as they are at greater churn risk.
 - Design special engagement strategies for **senior citizens** and **new customers** (first-year tenure).
 - Reduce reliance on **electronic check payments** by incentivizing auto-pay methods (credit cards, bank transfers).
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Conclusion

This analysis demonstrates that **contract flexibility**, **internet service quality**, **payment method**, and **customer engagement** significantly impact churn.

Strategic interventions focusing on these areas can lead to a **substantial reduction** in customer attrition and improved business sustainability.