
Executive Summary: Customer Churn Analysis

This project investigates customer churn patterns in a telecommunications company. By leveraging exploratory data analysis, we identify key drivers behind customer attrition and recommend strategic actions to improve retention.

Project Objectives:

- Analyze customer attributes influencing churn.
 - Visualize patterns using EDA.
 - Derive actionable insights to support decision-making and customer success strategies.
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Dataset Snapshot:

The dataset consists of 7,043 customer records with the following features:

- **Demographics:** Gender, SeniorCitizen, Partner, Dependents
 - **Account Info:** Tenure, Contract, PaperlessBilling, PaymentMethod
 - **Service Info:** InternetService, OnlineSecurity, TechSupport, StreamingServices
 - **Target Variable:** Churn (Yes/No)
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Key Findings & Insights:

1. Overall Churn Rate

- **26.5%** of customers in the dataset have churned.

- This is a critical retention concern and exceeds the typical industry benchmark (~15–20%).

2. Contract Type Is a Major Driver

- Churn rate among **month-to-month** contract users: **43.9%**
- Churn rate among **one-year** contract users: **11.5%**
- Churn rate among **two-year** contract users: **2.8%**
- **Insight:** Customers on shorter contracts are 15x more likely to churn than those on two-year contracts.
- **Recommendation:** Promote longer contracts with loyalty discounts and value bundles.

3. Tenure Affects Loyalty

- Customers with **<12 months** tenure account for **52% of churn**.
- Longer-tenured customers (>24 months) exhibit **<6% churn**.
- **Recommendation:** Focus on **first-year experience**—welcome offers, proactive support, and personalized onboarding.

4. Payment Method & Churn

- Churn among **Electronic Check** users: **45.5%**
- Churn among **Bank Transfer (automatic)** users: **15.2%**
- Churn among **Credit Card (automatic)** users: **16.1%**
- **Insight:** Manual payment customers churn at nearly **3x** the rate of auto-pay users.
- **Recommendation:** Encourage auto-pay enrollment via incentives or simplified setup.

5. Tech Support & Online Security

- Churn among customers **without tech support**: **37.7%**

- Churn among customers **with tech support: 14.1%**
- Similar patterns observed for **online security** and **device protection**.
- **Recommendation:** Offer **free trials or service bundles** to showcase the value of support tools.

6. Senior Citizens Churn More

- Churn rate for **Senior Citizens: 41.2%**
- For non-seniors: **24.9%**
- **Recommendation:** Tailored communication, simplified services, or dedicated support lines may help retention.

7. Internet Type & Churn

- **Fiber optic users** churn at **41%**, whereas **DSL users** churn at only **19.5%**.
- Possible reasons include performance expectations or service disruptions.
- **Recommendation:** Monitor satisfaction and offer **service quality guarantees** for fiber customers.

8. Monthly Charges Are a Trigger

- Customers paying **> \$80/month** churn at **41.3%**, versus **< 20%** for those under \$50.
- **Recommendation:** Tiered pricing, bundling, or loyalty discounts can help retain high-paying customers.

9. Paperless Billing May Reduce Engagement

- Churn rate for **paperless billing** users: **33.6%**
- For paper billing: **22.5%**
- May reflect lower engagement or communication gaps in digital channels.

- **Recommendation:** Improve email communications and add **personalized engagement** strategies for paperless users.

10. Multi-Service Users Are More Loyal

- Customers using **4+ services** have a churn rate of **13%**
- Those using **1-2 services** churn at over **35%**
- **Recommendation:** Promote service bundling and **value packages** to increase stickiness.

11. Gender, Partner Status Have Minimal Impact

- Gender, partner status, and dependent presence do not significantly influence churn independently.
 - However, combined with **contract and tenure**, they can contribute to predictive modeling.
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Strategic Recommendations:

- Launch **churn prediction models** using key predictors (tenure, contract, payment method, monthly charges).
- Build **retention campaigns** for high-risk segments (short-tenure, electronic check users).
- Promote **long-term contracts and bundles**.
- Enhance digital experience for **paperless billing** customers.
- Offer **loyalty programs** to reward longevity and service upgrades.