

Executive Summary: Customer Churn Analysis

This analysis investigates the key factors contributing to customer churn in a telecom company, leveraging a customer dataset that includes demographic information, service usage patterns, and contract details.

Key Findings:

- **Churn Rate:** Approximately 26% of customers have churned, indicating a substantial risk to revenue retention.
- **Demographic Influence:**
 - **Senior Citizens** are more likely to churn compared to younger customers.
 - Customers with short tenures (particularly those in their first two months) exhibit the highest churn rates.
- **Contract Type & Commitment:**
 - Customers on **month-to-month contracts** show the highest churn propensity.
 - Longer-term contracts (1-year and 2-year) are associated with significantly lower churn rates.
- **Service Usage Patterns:**
 - Customers with **multiple service features** (like internet service, online security, and phone service) are more loyal.
 - Lack of features like **online backup, tech support, and streaming TV** is linked to higher churn.
- **Data Cleaning and Preprocessing:**
 - **TotalCharges** was initially an object type and contained missing values, which were replaced and converted to float for accurate analysis.
 - The **SeniorCitizen** column was transformed for better readability (from 0/1 to No/Yes).

Strategic Implications:

- **Retention Efforts** should focus on new users (0–2 months tenure) and senior citizens.
- **Incentives or bundles** for customers on month-to-month contracts may encourage longer commitments.
- **Promoting value-added services** like online security and phone service may help reduce churn.

This analysis provides actionable insights that can support targeted customer retention strategies, ultimately improving long-term profitability and customer satisfaction.

This report explores patterns in customer churn behavior using a telecom customer dataset. The analysis covers demographics, subscription types, service usage, and tenure, with a focus on identifying high-risk segments based on churn percentage.

Overall Churn Rate:

- **26.5%** of total customers have churned.
 - Out of ~7,043 customers, **1,869** churned.
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Churn by Demographics:

- **Senior Citizens:**
 - Represent ~16% of customers.
 - **42% of senior citizens churned**, compared to only **24%** of non-senior customers.
- **Gender:**
 - Churn is nearly **evenly distributed** between genders.
 - Male churn rate: **27%**, Female: **26%** → No strong correlation between gender and churn.

Churn by Tenure:

- Customers with **1–2 months tenure** have the **highest churn rate (over 60%)**.
- Customers with **more than 2 years tenure** have **churn rates below 10%**.
 - Indicates strong **retention among long-term users**.

Churn by Contract Type:

- **Month-to-month contract:**
 - Makes up the largest customer base.
 - **Churn rate: ~43%**
- **One-year contract:**
 - **Churn rate: ~11%**
- **Two-year contract:**
 - **Churn rate: ~3.4%**
 - Clear correlation: **longer contracts drastically reduce churn**.

Churn by Internet Service:

- **Fiber Optic Users:**
 - **Churn rate: ~41%**
 - Highest among all internet types.
- **DSL Users:**
 - **Churn rate: ~19%**
- **No Internet Service:**

- **Churn rate: ~7%**
 - Customers without internet tend to stay due to minimal service interaction.
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Churn by Service Add-ons:

- **Online Security:**
 - With service: **~15% churn**
 - Without service: **~42% churn**
- **Tech Support:**
 - With service: **~17% churn**
 - Without service: **~41% churn**
- **Streaming TV/Movies:**
 - With service: **churn ~30%**
 - Without service: **~20%**

Insight: **Customers with additional support and security services are significantly more likely to stay.**

Churn by Payment Method:

- **Electronic check users:** Highest churn rate (~34%)
 - **Bank transfer, credit card, mailed checks:** Churn rate between **15%–20%**
 - Suggests that **less secure or manual payment methods correlate with higher churn.**
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Strategic Recommendations:

1. **Target new users (first 2 months)** with onboarding support and retention incentives.

2. Promote **long-term contract upgrades** via discounts or bundled offers.
3. Increase adoption of **support and security services** through upselling.
4. Encourage shift from **electronic checks** to auto-payment methods.
5. Consider **personalized loyalty programs** for senior citizens.