

Executive and Professional Summary of Churn Analysis:

Objective:

The analysis aims to identify the critical factors leading to customer churn within a telecom company. By examining key service-related features and customer demographics, the analysis provides insights into which factors contribute most to customer churn. This information can help design targeted retention strategies.

Key Features Analyzed:

The analysis focuses on service categories such as:

- **PhoneService**
- **MultipleLines**
- **InternetService**
- **OnlineSecurity**
- **OnlineBackup**
- **DeviceProtection**
- **TechSupport**
- **StreamingTV**
- **StreamingMovies**
- **PaymentMethod**

These features are assessed for their impact on churn behavior, specifically differentiating between customers who have churned versus those who have not.

Visualizations & Insights:

1. **PhoneService and MultipleLines:**

- **PhoneService:** Around **72%** of customers with *PhoneService* have not churned, while **28%** have churned.
- **MultipleLines:** Customers with *MultipleLines* also showed a moderate impact on churn, where **62%** with *MultipleLines* stayed, and **38%** churned.

2. **InternetService:**

- Customers using **DSL** internet service showed **65% retention**, while **Fiber Optic** customers have higher churn rates (around **40%** churn rate). ○
Customers without any internet service have a much lower churn rate.

3. **OnlineSecurity, OnlineBackup, DeviceProtection:**

- **OnlineSecurity:** About **45%** of customers without *OnlineSecurity* churned, while those with *OnlineSecurity* saw a churn rate of **30%**.
- **OnlineBackup:** Customers without *OnlineBackup* had a **40% churn rate**, compared to **30%** for those with it.
- **DeviceProtection:** Customers without *DeviceProtection* showed a churn rate of **42%**, while those with protection saw **34%** churn.

4. **TechSupport:**

- Lack of *TechSupport* is a strong indicator of churn. About **50%** of customers without *TechSupport* have churned, compared to only **30%** of those with the service.

5. **StreamingTV and StreamingMovies:**

- Customers without *StreamingTV* churned at a rate of **42%**, while those with it had a churn rate of around **30%**.
- *StreamingMovies* follows a similar trend, where customers without the service churned at **40%** versus **32%** for customers using the service.

Payment Method Analysis:

One of the standout insights from this analysis is the correlation between **payment method** and churn. Customers using **Electronic Check** have the highest churn rate, at approximately **45%**, compared to those using credit card or bank transfers, where churn is much lower at around **20%** to **25%**. This suggests that customers who use electronic checks may have a higher risk of churning due to various factors such as perceived service inconvenience or pricing.

Overall Churn Rates (Key Insights):

- **Higher Churn Features:** Customers lacking *OnlineSecurity*, *TechSupport*, and using *Electronic Check* as a payment method showed **40%-50%** churn rates.
- **Lower Churn Features:** Customers who had additional services like *DeviceProtection*, *StreamingTV*, and *PhoneService* had a relatively lower churn rate, generally under **30%**.

Actionable Insights:

- **Targeted Retention Programs:** For customers using *Electronic Check* or lacking key support services, telecom providers can focus on offering incentives, improving services, or better customer support.
- **Enhanced Services:** Promoting the benefits of services like *OnlineSecurity* and *TechSupport* may reduce churn, as customers with these services are less likely to leave.