

Telco Customer Churn Analysis

Project Document:

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Project Overview:

Customer churn is a significant business issue, especially with the telecommunications industry, where the competition can always be gleaned. A case of churn occurs when customers stop using a service due to either dissatisfaction or a better service. The analysis of the Telco Customer Churn dataset aims at identifying which customer churn patterns exist and which factors may cause a higher churn rate.

Our objective is to produce actionable insight from the data so businesses can better understand who to prevent churn and keep. This objective is actualized by making analyses over customer demographics, details of the contract, and service usage patterns toward identifying the greatest predictors of churn.

Business Problem:

Problem statement: Churned customers lead to direct revenue loss and increase the cost of acquiring those customers. Identifying which customer is more likely to churn along with the drivers of churn help the business to take proactive steps toward the minimization of customer attrition.

Primary Goal:

1. Calculate the churn rate as a whole and its distribution along customer categories.
2. Primary causes of customer attrition: Tenure, services, and payment methods.
3. Provide prescriptive solutions on how customers may enhance retention.
3. Dataset Description

It contains information from the data about the customer, subscription, services, and churning. The total number of rows to 7,043, and the number of columns is 21.

Source: Telco Customer Churn Dataset

Data Characteristics:

Number of Records: 7,043

- Number of Columns: 21

Missing Data: The column for total charges has missing values in 11 records.

Significant Variables in the Data Set

Interpret as if explaining in view of the columns represented in the dataset.

Customer Demographics:

Customer ID: an id assigned uniquely to a customer.

-Gender: gender of the customer (Male or female).

- Senior Citizen: Whether the customer is a senior citizen (1 = Yes, 0 = No).

Spouse: The existence of a spouse in the customer's life. Yes/No.

Dependents - Whether the customer has dependents (Yes/No).

Subscription Details:

Tenure: The months the customer has spent with the company.

Contract: Type of contract (Month to month, One year, Two year).

Paperless Billing Whether the customer is enabled for paperless billing Yes/No.

Payment Method: Type of payment offered by the customer (electronic check, mailed check, bank transfer, credit card).

Service Used:

Phone Service Whether or not they have phone service Yes/No.

Internet service: Type of Internet (DSL, Fiber optic, No).

Further services to which the customer subscribes would be OnlineSecurity, Tech Support, Streaming TV, etc.

Cost and Attrition:

Monthly Charges: The amount that the customer pays every month.

-Minimum Total Charges: Minimum total charged to a customer.

Churn: Whether the customer churned or not (Yes/No).

Data Preprocessing

Data Cleansing:

Cleaning was carried out before processing the data.

- **Missing Values:** There were 11 rows with missing `TotalCharges`. These rows were for customers who have 0 tenure, or yet not served.

- The Data Type Correction Column TotalCharges was read in as object and had to be coerced to numeric in order to analyze.

Dealing with Duplicates:

No duplicate entry exists in the data.

Exploratory Data Analysis (EDA)

EDA was performed in relation to the trends of customer churn and relationship patterns between different variables. Analysis pointed out some below areas:

It is the churn rate summary percentage of churning customers about those who did not.

- **Demographic Churn:** Analyzes churn rates based on a customer's demographics, such as gender, age, and dependents.

It includes:

Service Churn by Service: Contributions of internet, phone, and tech support services to churn.

- **Churn by Subscription Type:** Churn segmented by contract length, payment method, and tenure.

Insights and Analysis

Churn Rate Analysis

It provides an insight that the mean churn rate is 26.58%, which simply means about one-fourth of customers have churned out from the service.

Business Impact: A churn rate above 25% indicates a substantial loss of customers and retention efforts are inevitable.

Gender and Churn Analysis

- **Insight:** The churn rate between males and females is practically not noticeable with no difference at all in their behavior across lines of genders.
- **Business Impact:** Gender doesn't appear to be a very effective churn indicator.

Senior Citizen Churn Analysis

- **Insight:** 41% churn among seniors aged 60+, whereas it is only 25% in the case of the younger ones.

- Business Impact: The elderly will also be more sensitive in business to pricing and service changes, necessitating specific retention approaches.

Partner and Dependent Status

- Insight: Single or childless customers churn presumably for reason of lack of long-term stability or lowered satisfaction.

Commercial Impact: Loyalty schemes or personalized service for customers who do not have dependents and are singles may be positive factors.

Tenure and Churn

- **Insight:** Customers who are with a business for short tenures (0-12 months are most likely to churn, whereas longer tenures above 24 months are less likely to leave."

- **Business Impact :** Customers who have recently subscribed are more likely to churn, and engagement, as well as incentives, are so critical to occur early in their subscription.

Type of Internet Service and Churn

- Insight: Those using Fiber optic customers experience a churn of 30%. DSL stands at 15%.

The business impact though with faster services, the fiber-optics may be costlier services and hence may be causing potential dissatisfaction and a higher churn.

CONCLUSION: Type of Contract and Attrition

Insight: For one-month-to-month customers, the churn rate is 42% for one-year contract customers at 10% and two-year contract customers at 4%.

- Business Impact: Longer contracts appear to reduce churning probably because of investments in one's finances. Incentives for longer contracts, therefore, also appear to help retention.

Payment Method and Churn

- **Insight:** Customers paying via an electronic check have much higher churn rates compared to those paying via bank transfers and credit cards.

Business Impact It may also impact customer satisfaction because automatic payments will result in higher retention levels.

Monthly and Total Charges

- **Insight:** Customers who pay more within the month (\$70+) are the most likely to churn. It thus means that cost is an important factor in determining the churn rate.

Business Impact-: Check the pricing strategy and introduce special offers or discounts to a customer for the high bills in an effort to cut off the churn.

Conclusion 8: In the analysis, the following critical determinants of customer churn were presented: contract type, tenure, method of payment, and usage of service. The likelihood of churning is relatively higher for month-to-month contracts, high monthly charges, and small tenures customers. Other prominent drivers of churn are older consumers and users who pay by electronic checks. Key Findings:

Conclusion:

Senior citizens and customers with the highest monthly bills have the highest churn rate. Long-term contracts, autopayments intended to dissuade clients from fleeing.
-Relative churn for fiber-optic is more significant than that of DSL partly due to a higher cost of service.

Recommendations

From this analysis, I will outline the strategies to minimize customer churn based on the insights drawn from it: 1. Incentive for long-term contracts: Provide discounts or perks to customers who commit to one-year or two-year contracts to decrease churn rates. 2. New Customers within the Shortest Time Possible: The customers will churn with usage of 12 months. Onboarding programs, customized services, and special promotions are the opportunities to ensure retaining such customers. 3. High-charge customers Target: Treat high-charged customers with special discounts or loyalty schemes to avoid their switching to others because of charges to other carriers. 4. Targeted Plans for Seniors: Develop targeted plans or proposals for the elderly to retain this high-risk market. 5. Affordability of Service: Fiber users have higher churn rates, possibly because they are perceived as expensive service. The affordability of internet packages or bundled services may retain customers like this. This is one of the most detailed analyses discussing the most important factors affecting customers' churn for this Telco Customer Churn dataset. These insights would help the telecom company work on better means to retain the customers and reduce churn and optimize the offers of the service. If you'd like any of this changed or even added to the documentation, just let me know.