

# Understanding Telco Customer Churn

A Data-Driven Approach to Predicting and Preventing Customer Attrition

## Overall Churn Rate

26.5%

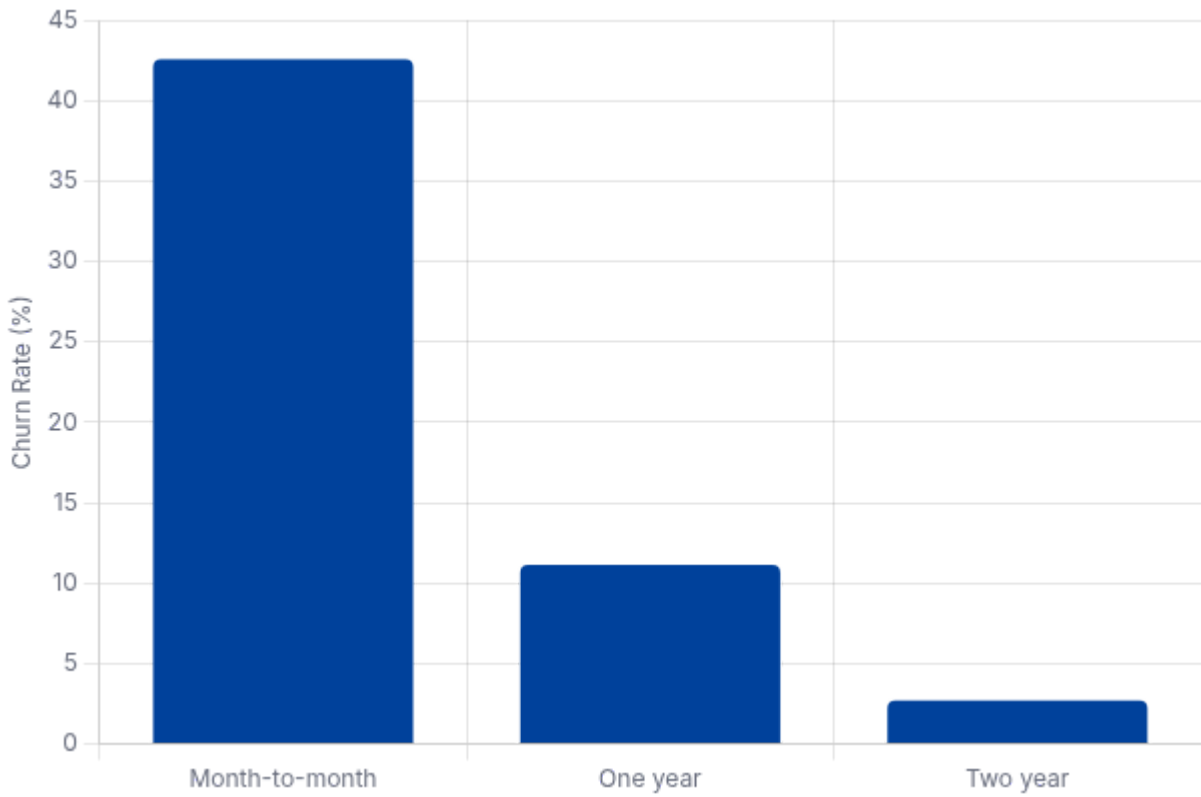
of customers churned, highlighting a critical need for a predictive retention strategy.

## The Challenge: Customer Attrition

Customer churn represents a significant loss of revenue and opportunity. By identifying the key factors that drive customers to leave, we can build a proactive strategy to improve satisfaction and retention. This project leverages historical customer data to create a powerful predictive model, turning insights into actionable business intelligence.

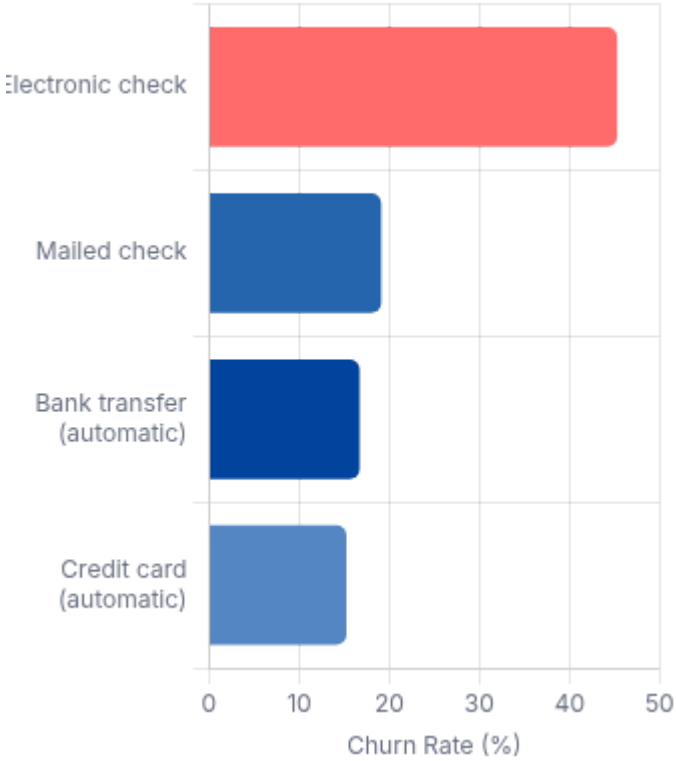
## The Anatomy of a Churning Customer: Key Predictors

### Contract Type is the Strongest Churn Driver



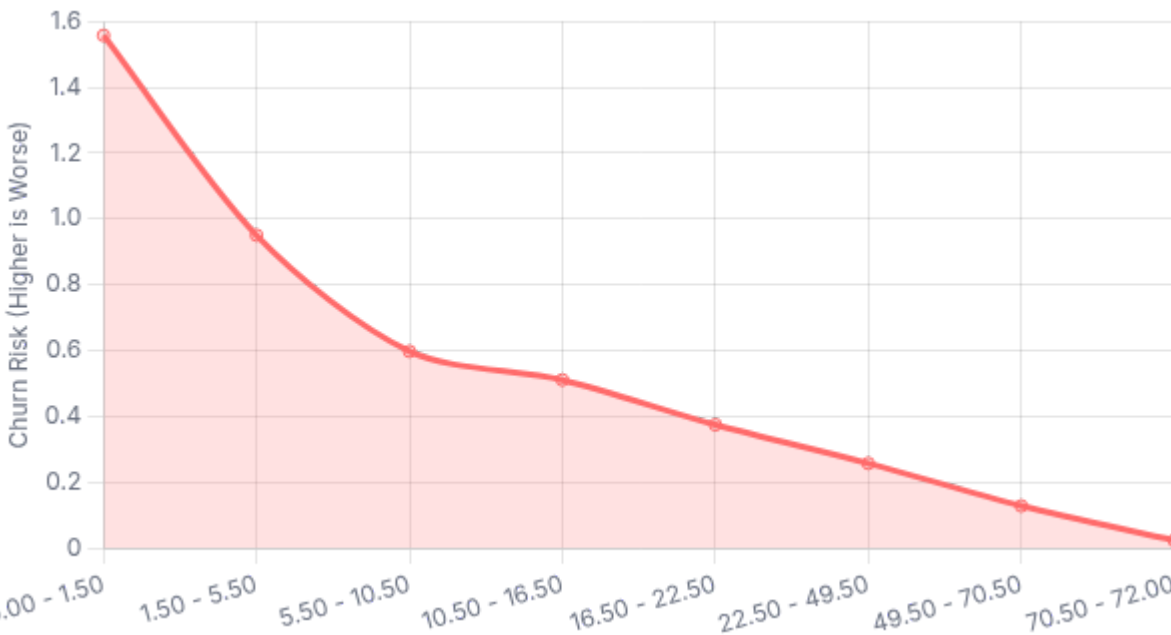
Customers on month-to-month contracts are significantly more likely to churn, indicating a lack of long-term commitment.

### Risk by Payment Method



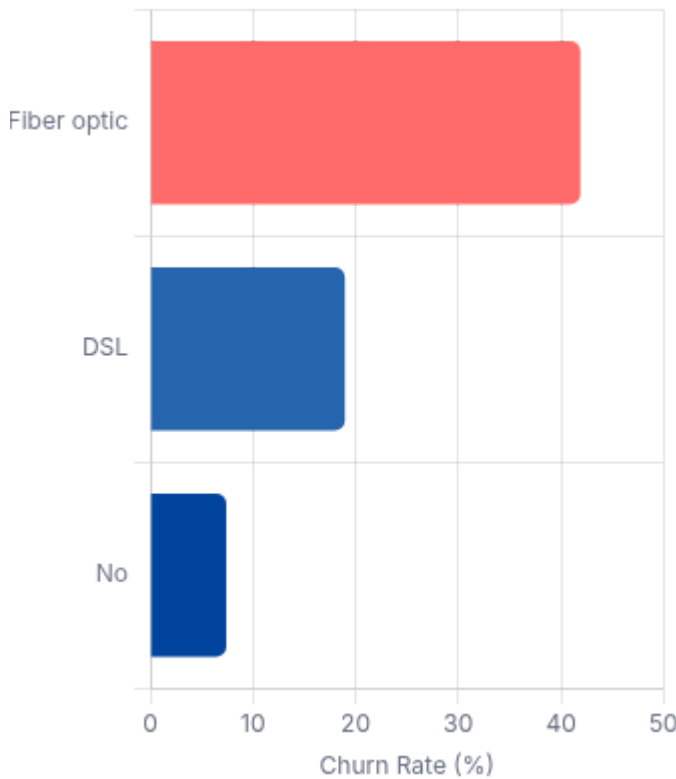
Electronic check payments are strongly correlated with higher churn rates compared to automated or traditional methods.

### Churn Risk Decreases with Customer Tenure



New customers are at the highest risk. As tenure increases, loyalty grows and churn rates drop dramatically.

### Fiber Optic Service & Churn



While a premium service, Fiber Optic customers show a much higher churn rate than DSL users, suggesting potential issues with service, pricing, or value perception.

### Impact of Key Add-ons on Churn



Customers without key support services like Online Security and Tech Support show a significantly higher churn rate.

## Building a Predictive Solution

### Our Methodology

- Data Preparation & Cleaning:** Corrected data types and handled missing values.
- Feature Engineering:** Used Decision Trees to create optimal, data-driven bins for continuous variables.
- Feature Selection:** Performed Chi-squared tests to select only statistically significant churn predictors.
- AutoML with H2O:** Trained, tuned, and compared dozens of models to find the top performer.

82.9%

#### AUC Score

Excellent at distinguishing churners from non-churners.

70.1%

#### Recall

Identifies 70% of customers who will actually churn.

53.7%

#### Precision

When predicting churn, the model is correct 54% of the time.

60.8%

#### F1-Score

A strong balanced score between Precision and Recall.

## Actionable Insights & Recommendations



### Focus on Contracts

Proactively offer incentives for customers on month-to-month plans to upgrade to more stable one or two-year contracts.



### Support Fiber Customers

Bundle Online Security and Tech Support with Fiber Optic plans to mitigate the high churn rate in this premium segment.



### Incentivize Payments

Offer a small discount or bonus for customers who switch from Electronic Check to more secure automated payment methods.



### Nurture Newcomers

Implement a robust onboarding program for customers in their first 3 months to build loyalty and reduce early churn.