

TELECOM CUSTOMER CHURN ANALYSIS REPORT

Predictive Insights for Customer Retention

■ Objective:

The goal of this analysis is to identify why customers leave (churn) and to predict which customers are likely to. This helps the telecom company take early action to retain them through offers or improved service quality.

■ Model Evaluation:

The Random Forest model achieved an accuracy of 78.48%, correctly predicting 4 out of 5 customers. It performs very well at identifying customers who stay (90%) and moderately at catching churners (49%).

■ Key Metrics:

- Precision (Churn): 62% – When the model predicts churn, it's correct 6 out of 10 times.
- Recall (Churn): 49% – The model successfully finds about half of real churners.
- F1-Score (Churn): 54.8% – Balance between precision and recall.

■ Interpretation:

The model is a strong baseline for churn prediction. It helps the business focus on customers at risk and design.

● Top 5 Features Influencing Churn:

1. Total-Charges (0.1668): Higher total payments → higher churn likelihood.
2. Tenure (0.1466): Newer customers leave more frequently.
3. Monthly-Charges (0.1449): High monthly bills often cause churn.
4. Contract (Month-to-month) (0.0566): Short-term customers are more likely to leave.
5. Tech-Support No (0.0334): Lack of technical support drives dissatisfaction.

✓ MODEL EVALUATION RESULTS

Accuracy Score: 0.7848

Classification Report:

	precision	recall	f1-score	support
0	0.8288	0.8909	0.8587	1549
1	0.6202	0.4920	0.5487	561
accuracy			0.7848	2110
macro avg	0.7245	0.6914	0.7037	2110
weighted avg	0.7734	0.7848	0.7763	2110

↑ TOP 5 FEATURES INFLUENCING CHURN:

1. TotalCharges	0.1668
2. tenure	0.1466
3. MonthlyCharges	0.1449
4. Contract_Month-to-month	0.0566
5. TechSupport_No	0.0334

● KPI Dashboard Insights

KPI 1 — What % of Customers Left vs Stayed:

About 73.4% stayed and 26.6% left, showing a moderate churn rate.

KPI 2 — Which Contract Types Have Highest Churn:

Month-to-month contracts have 42.7% churn, while two-year contracts have only 2.8% churn.

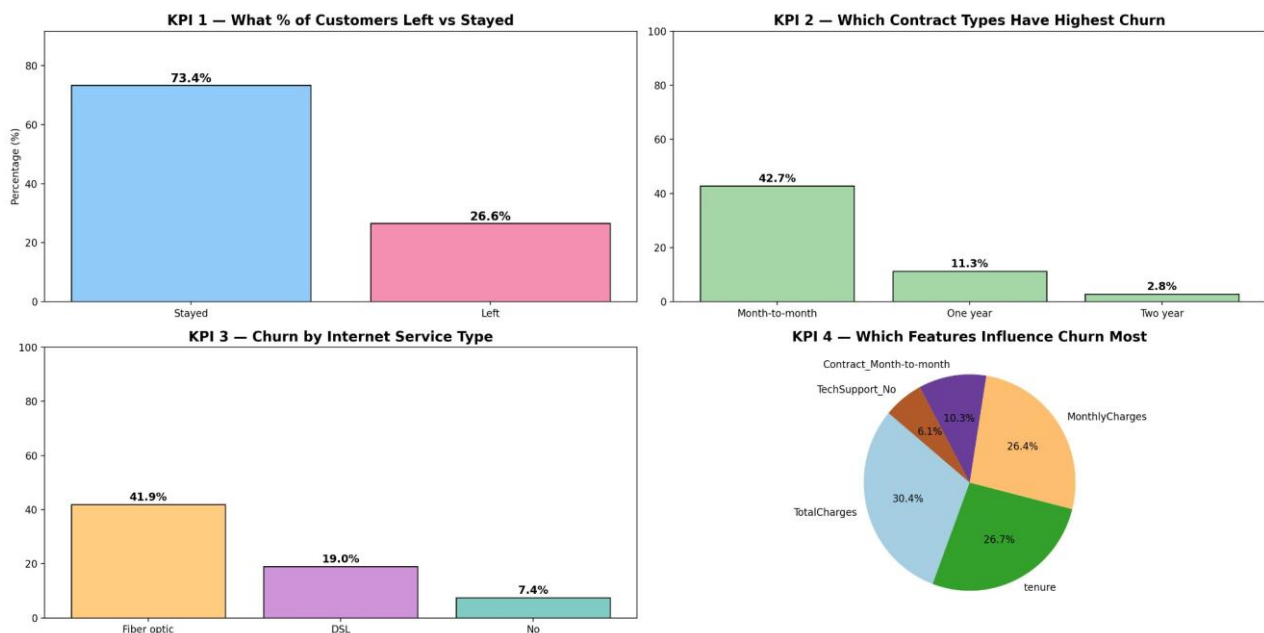
KPI 3 — Churn by Internet Service Type:

Fiber optic users churn the most (41.9%), followed by DSL (19%). Service or pricing issues could be cause

KPI 4 — Which Features Influence Churn Most:

Payments, tenure, and contracts strongly influence churn. Improving billing and contracts can boost retention.

TELCO CUSTOMER CHURN — KPI DASHBOARD



● Recommendations for Customer Retention

1. Offer loyalty discounts for high-paying or long-tenure customers.
2. Encourage customers to move from month-to-month to yearly contracts.
3. Provide free or priority tech support for new customers.
4. Review fiber optic service feedback to reduce churn rate.
5. Use predictive model monthly to identify at-risk customers and act early.

■ Summary:

- Overall churn: 26.6% (1 in 4 customers leave).
- Main churn causes: high bills, short tenure, no long-term contract, and lack of support.
- Model accuracy: 78.5% – reliable for forecasting and retention planning.

This predictive approach helps the telecom company reduce customer loss and improve satisfaction.