

Customer Churn Prediction — Executive Summary

Objective

Analyze customer consumption, pricing, and tenure data to identify key churn drivers and develop a predictive model to proactively identify at-risk customers and improve retention.

Key Insights

Exploratory Data Analysis revealed that churned customers typically exhibit lower energy consumption, lower profit margins, and shorter tenure, indicating lower engagement and higher churn risk. Changes in pricing and customer price sensitivity were also identified as meaningful churn indicators. Customer tenure, consumption patterns, profitability, and price variation were the most important churn drivers.

Predictive Model Performance

A Random Forest classification model was developed to predict customer churn. The model achieved an ROC-AUC score of 0.65 and successfully identified approximately 45% of customers at risk of churn, enabling proactive intervention.

Business Impact

The predictive model enables proactive identification of at-risk customers, allowing targeted retention strategies, improving customer retention, increasing customer lifetime value, and reducing revenue loss.

Recommendations

Implement targeted retention strategies for high-risk customers, particularly newer and lower-engagement customers. Monitor customer consumption, tenure, and price sensitivity as early warning indicators. Integrate the predictive model into business operations for continuous churn monitoring.

Conclusion

Customer churn can be effectively predicted using customer behavior, pricing, and tenure data. Leveraging predictive analytics will enable proactive retention efforts, reduce churn, and improve long-term business performance.