

Customer Churn Prediction — Executive Summary

Client and Objective

The client, PowerCo, is an energy supply company providing electricity and gas services to business customers. PowerCo has been experiencing customer churn, leading to revenue loss and increased customer acquisition costs. The objective of this project was to analyze customer consumption, pricing, and tenure data to identify key drivers of churn 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. Price sensitivity and changes in electricity pricing were also identified as important factors influencing churn behavior. Customer tenure, consumption patterns, profitability, and price variation were the most important drivers of churn.

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 71% of customers at risk of churn, enabling proactive intervention. Feature engineering, including tenure and price sensitivity features, significantly improved model performance.

Business Impact

The predictive model enables PowerCo to proactively identify high-risk customers and implement targeted retention strategies. This can help reduce churn, improve customer retention, increase customer lifetime value, and reduce revenue loss.

Recommendations

PowerCo should implement targeted retention strategies for high-risk customers, particularly newer and lower-engagement customers. Customer consumption patterns, tenure, and price sensitivity should be monitored as early warning indicators. The predictive model should be integrated into business operations for continuous churn monitoring.

Conclusion

Customer churn can be effectively predicted using customer behavior, pricing, and tenure data. By leveraging predictive analytics, PowerCo can proactively identify at-risk customers, improve retention strategies, and enhance long-term business performance.