

Task 1: Business Understanding & Hypothesis Framing

Subject: Data Science Approach to Address PowerCo's Churn Problem

Dear AD,

I hope this email finds you well. I have thoroughly examined the problem context provided by PowerCo, a major gas and electricity utility facing a significant churn problem, particularly in the SME segment. PowerCo has engaged our services to help address the churn issue, and they believe that customer price sensitivity might be driving the churn behavior. The client is interested in testing a discounting strategy to retain customers at high risk of churning.

Based on the context and hypothesis, I have formulated a data science approach to investigate the churn problem and test the discounting strategy. Here are the major steps we would need to take:

1. Data Collection and Preprocessing:

- Gather historical customer data, including attributes such as customer characteristics, usage patterns, billing information, and churn status.
- Clean and preprocess the data to handle missing values, outliers, and ensure data quality.

2. Exploratory Data Analysis (EDA):

- Perform exploratory analysis to understand the distribution of churn among different customer segments, such as corporate, SME, and residential.
- Identify any patterns or correlations between customer price sensitivity (e.g., pricing plans, billing history) and churn rates.

3. Feature Engineering:

- Create relevant features that capture customer price sensitivity, such as average monthly spending, price changes, and response to promotions or discounts.
- Generate additional customer-related features, including tenure, service usage patterns, and customer interactions.

4. Model Selection and Churn Prediction:

- Select appropriate predictive models (e.g., logistic regression, decision trees, random forests, or gradient boosting) to predict customer churn.
- Split the data into training and testing sets to evaluate model performance accurately.
- Train the model on historical data with churn labels as the target variable.

5. Model Evaluation and Interpretation:

- Evaluate the predictive model using appropriate metrics like accuracy, precision, recall, F1-score, and ROC-AUC.
- Interpret the model to identify the most influential factors contributing to churn prediction, including customer price sensitivity.

6. Discounting Strategy Test:

- Identify customers with a high propensity to churn based on the predictive model's results.
- Test the discounting strategy by offering a 20% discount to customers identified as likely to churn.
- Monitor the retention rate of the discounted customers over a defined period.

7. Analysis of Discounting Impact:

- Analyze the impact of the discounting strategy on customer retention and churn rates.
- Compare the churn rates of the discounted group to a control group that did not receive discounts.

8. Recommendations:

- Based on the results, provide recommendations to PowerCo on the effectiveness of the discounting strategy in reducing churn.
- Suggest other potential strategies to address churn in the SME segment if necessary.

It's worth noting that additional data might be required, such as customer feedback or reasons for churn, to gain deeper insights into customer preferences and reasons for leaving.

Please let me know if you have any further suggestions or if there are any specific aspects you would like to emphasize in this analysis. I am eager to discuss this further with you and move forward with the investigation.

Best regards,

Avuluri Venkata Madhavi