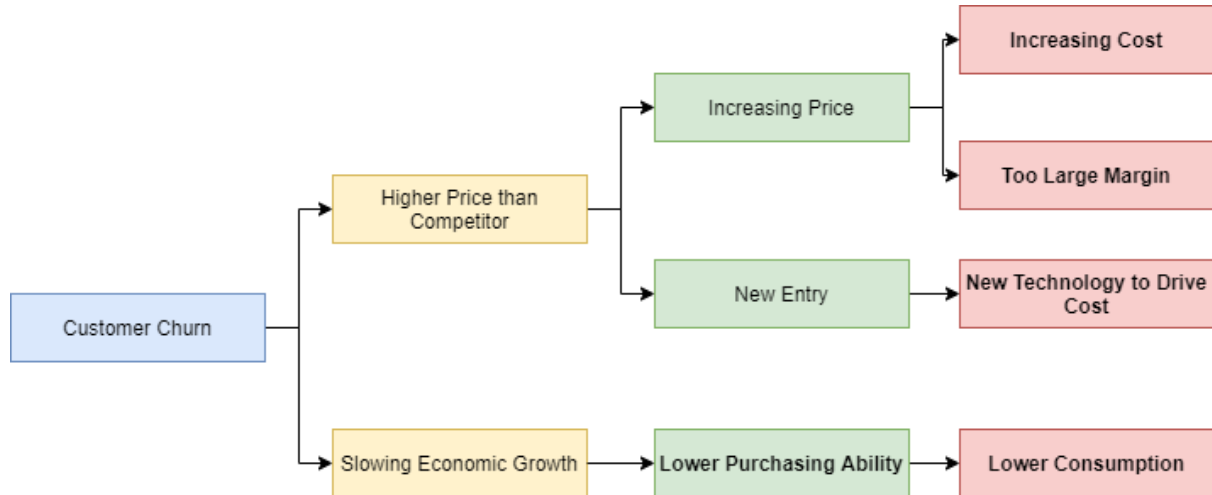


Dear Lead Data Scientist,

I have concluded my finding of the case that our client, PowerCo proposes regarding the customer churn. The conclusion is based on the hypothesis that customer churn is driven by price sensitivity.

Here is my analysis:



Churn can be analyzed from two perspectives: *internal* and *external* sides.

From the *internal* side, the problem can arise from two factors:

- The increasing price of the product from our client can lead to customer shift to the lower-priced product from another company
- The new entry in terms of player and technology that promote lower cost, that can lead to customer shift to the lower-priced product from another company

From the *external* side, the problem can arise from a factor:

- slowing economic growth that would happen to all customer and have the hardest impact on SME as they will have lower demand for their product and force them to reduce the price margin to deal with customer's ability. This will make SME prefer to churn.

Based on my findings, here are my suggestions to test our client's problem using data science, along with the data required:

1. Analyze internal data which covers:
 - Cost structure
 - Pricing historyThese data can be used to evaluate the internal performance of our client in time series.
2. Analyze external data (especially from customers) which covers:
 - Join date
 - Industry
 - Historical electricity consumption
 - Location (city or county)

- Customer satisfaction survey (to determine the probability of churned totally or because of shifting to the other's company)
 - Churned or not churned data
3. From the data we have gathered above, we will need to develop a binary classification model to predict churned or not churned of the customers. Some examples of these models are XGBoost, Gradient Boost Machines, Logistic Regression, KNN, etc.
 4. To choose the right model for us, we will evaluate each model's performance using some metrics:
 - Accuracy
 - Precision
 - Recall
 - F1These metrics are used to make sure our model can predict every labeled data (churned or not churned) correctly.
 5. We will then examine the most influencing factor of the customers that lead them to churn, using explainable AI.
 6. We can define a strategy to decrease customer churn by focusing on the root cause of the problem.

Please let me know if you have any questions or suggestions.

Thanks,

Iqbal