**Task 1: Business Understanding & Hypothesis Framing**

***Task***: Gain a better understanding of the problem our client is facing, and translate the business problem into a data science one.

*(Think about how you would go about solving this, from what data you think is relevant, to what modeling approach you would pursue, to how you would interpret the outcome)*

***Note:*** Spend no more than an hour on this.

**PowerCo Problem Context**:

***Context:***

Client is a major gas and electricity utility

* Supplies to corporate, SME and residential customers

Significant churn problem

* Driven by power-liberalization of energy market in Europe
* Problem is largest in the SME segment

***Client’s hypothesis***

It is possible to predict customers likely to churn using a predictive model

Hypothesis that churn is driven by customer price sensitivity

Client wants to try discounting strategy

* SME division head suggest that offering customers at high propensity to churn a 20% discount might be effective.

Hi AD,

In order to test the hypothesis of whether churn is driven by the customers’ price sensitivity, we would need to model churn probabilities of customers, and derive the effect of price on churn rates. We would need the following data to be able to build the model.

**Data needed**:

1. Customer data – which should include characteristics of each client, for example, industry, historical electricity consumption, data joined as customer, etc…
2. Churn data – which should indicate if customer has churned
3. Historical price data – which should indicate the prices the client charges to each customer for both electricity and gas at granular time interval

**Once we have the data, the work plan would be**:

1. We would need to define what price sensitivity is and calculate it
2. We would need to engineer features based on the data that we obtain, and build a binary classification model (e.g. Logistics Regression, Random Forest, Gradient Boosted Machines to name a few)
3. The best model would be picked based on the tradeoff between the complexity, the explainability, and the accuracy of the models
4. We would subsequently dive deeper into why and how price changes impact churn
5. Last but not least, the model would allow us to size the business impact of the client’s proposed discounting strategy.

Regards,

Duy Duong