BCG TechHack : Team 7

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PowerCo intents to reduce churn rate for SME enterprises..

PROBEM: Recent liberalization of the energy market in europe is inducing a more intense competition between energy providers

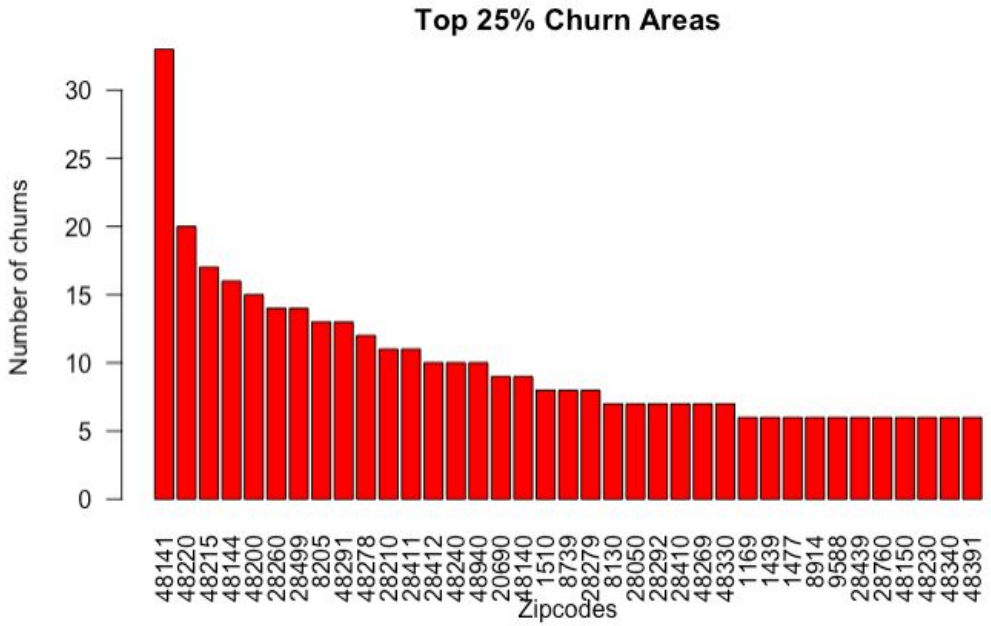
MISSION: BCG has identified the drivers of the problem and will be suggesting a strategy to counter it.

APPROACH:

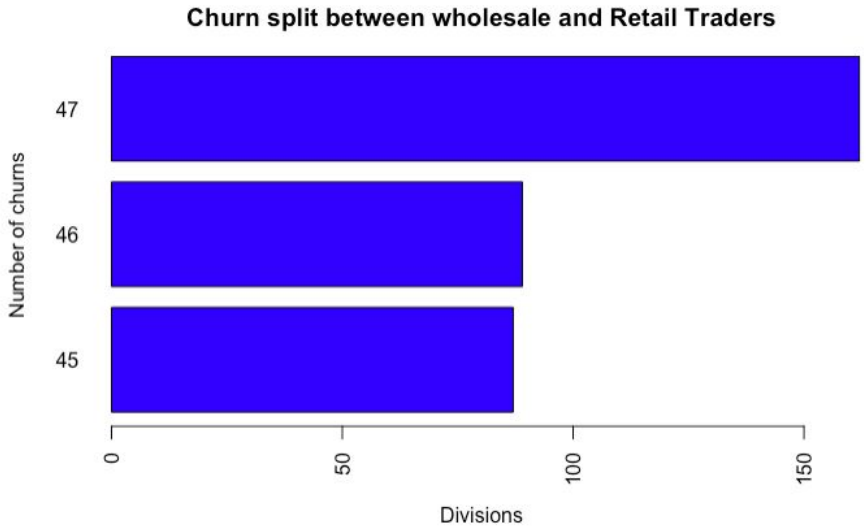
- We first identified the features that were the cause of major churns.
- We build and fit a predictive model to assess potential churning customers and have suggested a strategy based on our findings.
- We used historical data and logistic regression for our findings.

25% of churning clients are present in 37 zip codes..

- 50% of the churning clients are from Biscay province of Spain
- We have clients in 5,344 Zipcodes

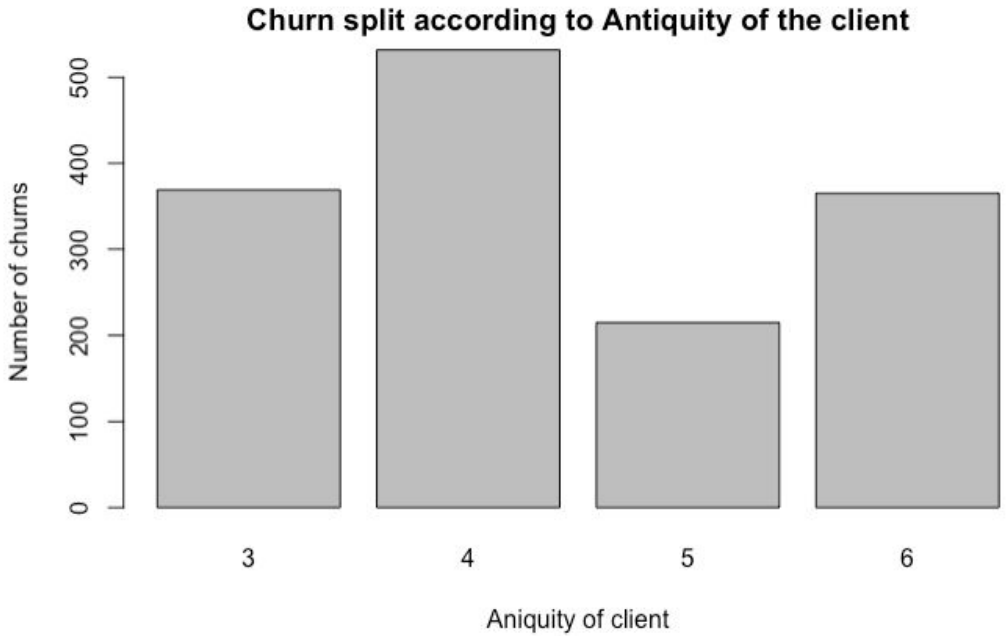


~ 25% churns happen in Wholesale and Retail Traders (G ISIC code)



47: Wholesale and retail trade and repair of motor vehicles and motorcycles
48: Wholesale trade, except of motor vehicles and motorcycles
49: Retail trade, except of motor vehicles and motorcycles

93 % churns happen for companies between 3-6 year old companies



A Simple Logistic Regression was used to model the probability of a customer to churn

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Call:
glm(formula = churn ~ cons_gas_12m + cons_last_month + Contract_Length +
    mod_flag + imp_cons + nb_prod_act, family = "binomial", data = TrainData1)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.7839  -0.4936  -0.4463  -0.4028   3.0356

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)     -8.131e-01  2.107e-01  -3.859 0.000114 ***
cons_gas_12m    -9.975e-07  4.077e-07  -2.446 0.014425 *
cons_last_month -4.468e-06  9.251e-07  -4.830 1.36e-06 ***
Contract_Length -1.565e-01  1.766e-02  -8.862  < 2e-16 ***
mod_flag        -4.437e-01  1.990e-01  -2.230 0.025740 *
imp_cons         1.251e-04  4.883e-05   2.562 0.010392 *
nb_prod_act     -5.974e-02  4.250e-02  -1.406 0.159796
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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
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Our Model confirms..

Cons_gas_12m	The higher the gas consumption of an SME enterprise in the last year the less likely they are to churn
Cons_last month	The higher the gas consumption of an SME enterprise in the last month the less likely they are to churn
Contract_length	The longer the contract length of an SME enterprise the less likely they are to churn
mod_flag	If an SME enterprise's contract was modified they are less likely to churn
imp_cons	SME enterprises with higher consumptions are less likely to churn
nb_prod_act	The more the number of products a SME own, the less likely they are to churn

Our Analysis Confirms that offering a 20% discount to customers is not feasible to earn a profit

Assumptions:

1. Total net margin data given used as the profit
2. Profit % used as 10% for all customers (source: https://www.investopedia.com/ask/answers/011915/what-average-profit-margin-utility-company.asp)
3. Actual Profit = Predicted probability of retention * net Margin
4. Profit with 30% discount = Sum of Revenue * 0.8 - cost

Our recommendations

Power Co needs a variable pricing model pricing which linearly decreases price of energy and power per unit when a longer contract is signed.

Power Co needs to focus on retaining clients from SME enterprises which have less number of products and have antiquity between 3-6 years.

Power Co needs to target on acquiring market for SME enterprises that have higher number of products and services and a higher average power consumption.

Power Co should inspect their clients based out of Biscay province and wholesale and retail traders.

Further Analyses

Following additional analyses could be conducted to evaluate the problem further:

- Evaluate ROI from different variable price modeling and discount combinations
- Construct Clusters for churning clients