2.1 Experiment Design

A product owner from the GO-PULSA product wants to increase the number of active customers and transactions on GO-PULSA for next month. However, the only customers who can use GO-PULSA are GO-JEK customers who use GO-PAY. (You cannot use Cash to buy GO-PULSA.) The PM wants more GO-JEK cash users to convert into a GO-PAY and GO-PULSA user. The Product Owner believes that cash users on GO-JEK would be more likely to use GO-PULSA if only they knew how easy GO-PULSA was to use. The Product Owner wants to give out free GO-PULSA vouchers to see if people will end up using GO-PULSA more often if only they were able to experience it for themselves. However, they only are able to use the vouchers if users have GO-PAY balance.

Questions

1. What metrics would you look at to evaluate the experiment?

Metrics for measure the success:

* Number of active customers on GO-PULSA

* Number of transactions on GO-PULSA (without voucher)

* Number of new acquired customers on GO-PULSA

* Number of redeemed users (new vs old) / Number of target users

* Number of active customers on GO-PULSA / Number of redeemed users

* Number of new customers (with or without) discount / Number of new customers

* Revenue = Active user count * transaction count * Average revenue per transactio

* Amount spend / Number of purchases

* Amount spend / Number of visitors

* Number of Clicks / Number of Impressions

2. Clearly state the objective of the experiment, and state the null and alternative hypotheses.

To check the significant difference if giving free GO-PULSA vouchers brings more users to use GO-PULSA and eventually more active customers than without vouchers. Randomly split visitors into two equally sized groups; variant and the control group.

H0: There is no statistically significant difference between control and variant groups with respect to the number of active customers

H1: There is statistically significant differences between control and variant groups with respect to to the number of active customers

3. Design the experiment stating all the steps and process that you will follow.

Giving GO-PULSA free vouchers to the right public would optimize the expected benefits, while giving them to all clients could result in money loss. It would be best to limit that free vouchers only to those that are most receptive to the voucher. To generate higher transaction volumes, it should by giving vouchers to the customer cohorts which would bring more conversions than others.

- Dividing the customers into cohorts based on RFM analysis
- RFM Analysis
  RECENCY (R): Days since last transaction
  FREQUENCY (F): Total number of transaction
  MONETARY VALUE (M): Total money this customer spent
- Start by selecting the top cohorts and dividing customers randomly into two equally sized groups
- Experiment to be rolled out at **5%, 20%, 50%, 100%**
  Control [90%], variant 1[5%], variant 2[5%]
- Formulating the hypothesis; set two-tailed test or one-tailed test
- Determine sample size using power analysis
- Larger the sample size the more precise our estimates; higher chance to detect a difference in the two groups
- Analyze A/B test results and make sure our results are repeatable, robust and can be generalized to the entire population