Analyse considerations

A good way to build a benchmark metric is through an average measurement of the historical KPIs metrics provided that those metrics falls under the same category. Based on the dataset provided the KPIs are for Category ID#4 so it is acceptable to assume that all retailers within this category can be compared against each other.

The challenge was to find out which type of average to use for each metric and in order to answer this question I had to go deeper into some analysis. I ran a few of statistical analysis with Python to find out statistical measurements that can guide me on taking a decision. Here’s an outline of the considerations.

Python Statistical Analysis - <https://github.com/umiranda/reebee_analysis>

Just for looking at the data I can see that the numbers vary substantially among all retailers, however, the variation within the same retailer is lower and that leads me to think that something else is impacting this number when comparing retailers’ numbers. Through some analysis I found out that the number of pages has a strong negative correlation with the engagement number, however it worth mentioning that if we take as example the retailer 1 and compare with retailer 2, they have the same number of pages per flyer and the retailer 1 TFE is approximately 3 times of the retailer 2 TFE.

With that said, because of the high standard deviation I thought that calculating TRIMEAN would resolve this issue as this method will eliminate outliers that is sitting outside of the 25% to 75% quartiles. However, this method has a disadvantage with small datasets as it takes out of the calculation few numbers and that might not have the precision we are looking for.

Based on the dataset provided I feel that the weighted average taking into consideration the number of pages will show a better result because it does make sense to think that the number of pages impact the engagement.

My takeaway of this analyse is that there are crucial differences between retailers/flyers within the same category that needs to be addressed in order to create a benchmark that would really help other retailers. Here are a few examples that might explain the numbers discrepancy:

* Flyer positioning in the app: Flyers in the first page of the app has more chance to catch people attention, clicks and engagement.
* Number of stores: Viewers tend to go into those flyers where the access to the store is easier/closer.
* Number of items that retailer has in its inventory: When a viewer is looking into something more specific, the likelihood to find it at Walmart is higher than finding it at Metro and they might have been into the same category.
* Brand relevance to that category: In this market, Canadian Superstore has more relevance than Valu-mart.

Those are just a few of the considerations that I would like to understand in order to confidently say that the benchmark is precise enough to help retailers.