Exercise 1: Data Analysis

Based on the bank's objectives, what 2 KPIs would you recommend as their focus for the campaign? How would you calculate those and incorporate those into your analysis?

The 2 KPIs that I would recommend focusing on is "Rate of Conversion"and "Placement".

Our goal is to "increase new account opens", to calculate how good these Ads worked, we need to find out how many of the ads lead to click on "open account start". We can find this data in the "Conversion 1 - Open Account Start" olumn. And we can calculate the Rate of Conversion (which is important for us) by Conversion rate = (conversions/total click) * 100%.

We also need to group the result by the placement and vendor. One of the key factors to find out which website we have more potential customers, so we more focus on those and similar ones. Because advertising each Ad will cost money, and we do not want to waste it by posting Ads on a website that does not lead us to our target market. By putting placements and Rate of Conversion together, we can come up with the idea that in which vendor and Ad will help us more to find hit our target and increase our customer number, which way of advertising is more efficient to get our target market's attention.

What would you recommend for future creative development to improve performance? What sizes are helping to generate the most value based on your selected KPIs?

To improve development, I recommend:

1. There is a high potential in vendor 1 which we need to find out how we can unlock them
2. Reconsider advertising in vendor 2
3. Change the Ads in vendor 3, change the content and how we represent them
4. In vendor 4, we mostly use a video screen, which is a good method for awareness, that is why it has high CTR but not Conversion Rate
5. We need to find premium targeted video content and why it catches people's use and use it in 300* 250 companion Banner to get our actual target.
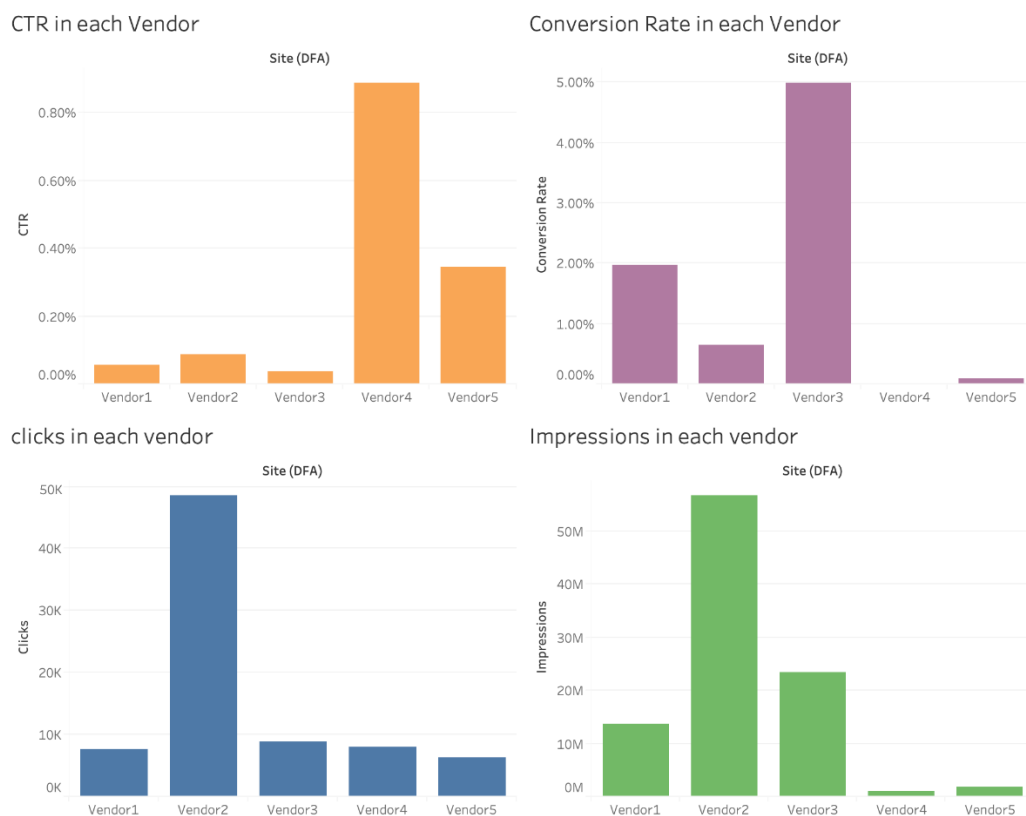

Figure 1

As you can see in figure 1, vendor 3 has the most conversion rate. Although vendor 4 has the best CTR, the Rate of Conversion in that vendor is zero. And also, the number of clicks and impressions in vendor 2 is more than others, but the Conversion Rate is in third place out of five.

Although CTR in vendor 3 is the lowest, it has the highest Conversion rate, which shows the succession. That shows our Ads in Vendor 3 hit the target market there. The impression number in vendor 3 is not bad, and it has the second rank, but the Ads are not attractive enough to lead to a click. If we change the concept in them, we can reach a lot of potential customers.

So, we need to find problems here to understand why although vendor 2 has a high value of the impression, most of them not lead to a click. There is a high potential in vendor 2 that if we could realize it, it will lead to a good number of potential customers. Also, we need to see what kind of product and service we advertise in vendor 4 that attract people to click on it. We also need to see if there is any relation between the content of the vendor and the product/ service we advertise there and if yes, we need to find the same relation in other vendors' content and Ads. Also, we can see what key points we put in vender 4 Ad that catch people's eyes, for example, "no fee for the first year", "discount" etc.

Furthermore, we need to find out why, although we have high CTR in vendor 4, the Conversion Rate is Zero. Do we have misrepresentation in our Ads? Something is happening in vendor 5, it has a high CTR, but that does not lead to an open account. This shows, our Ads are in line with the vendor content, but our target customer is not in these two vendors. So, they should reconsider spend money and advertising on these two vendors.

Let's get deeper into each vendor, to see what kind of placement and Ads we have in there because they have high CTR and that means we attractively present our service.
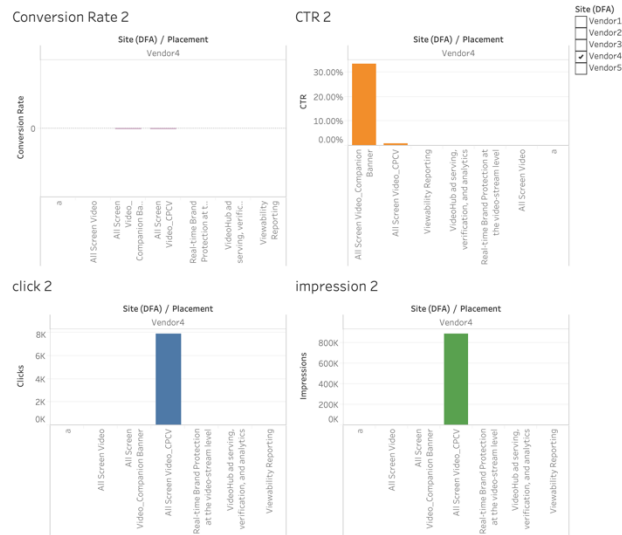
Figure 2

Figure 3

In Figures 2 and 3, you can see, in vendor 4 we mostly use video screen Ads, and it gets a good response, the highest CTR belongs to this vendor. Video screen ads good when the brand is new, and you want to make an introduction and awareness. Although it gets a good attraction, it usually not leads to the sale. That is maybe a reason that we do not have a conversion.
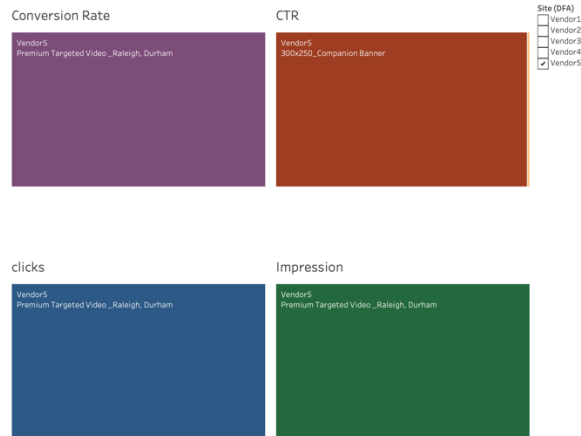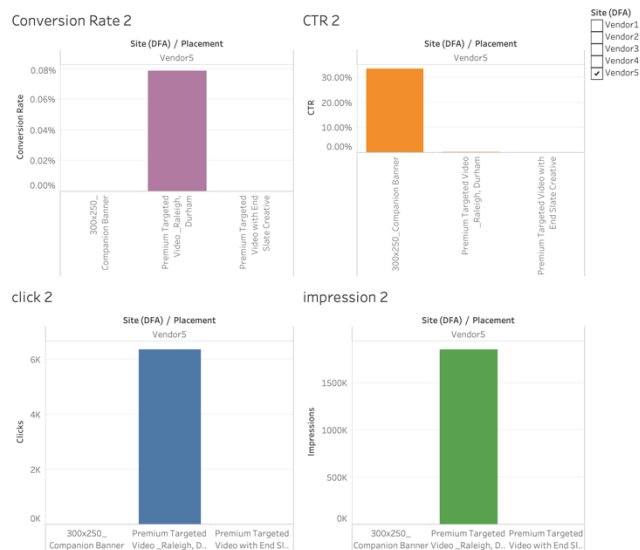
Figure 4

Figure 5

In Figures 4 and 5, you can see, in vendor 5 we have a great Conversion Rate which belongs to 300* 250 companion Banner, and the premium targeted video has one of the highest CTR, as well as click and impression. We need to analyze this banner to see why people click on it but not open the account, do we have misrepresentation in there? Moreover, we need to find out what we have in the video that convinced people to sing up. Can we put that in the banner and combine them?
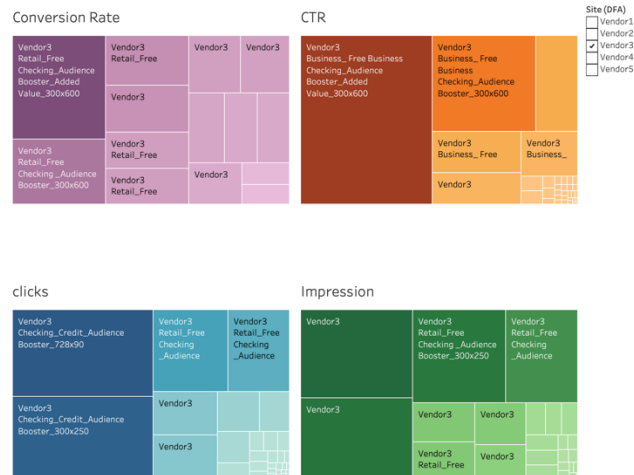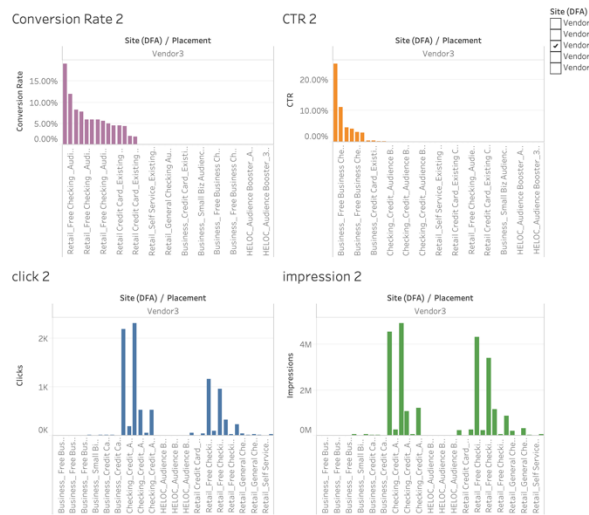
Figure 6

Figure 7

Vendor 3 has the highest Conversion Rate. The best placements in this vendor are "Retail_Free Checking_Audience Booster_Added Value_300x600", "Retail_Free Checking _Audience Booster_300x600", "Retail_Free Checking _Audience Booster_728x90" and "Checking_Credit_Audience Booster_Added Value_300x600". these placements have the best Conversion and CTR, we can use them as our models for other Ads
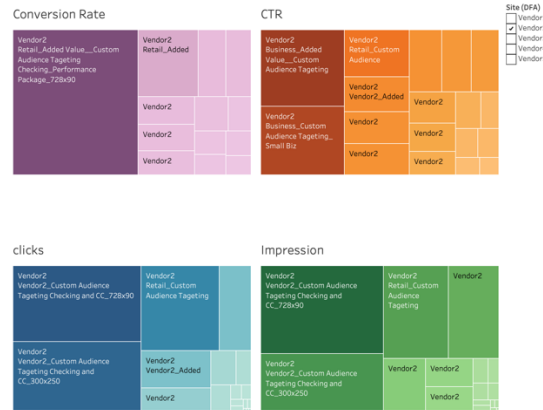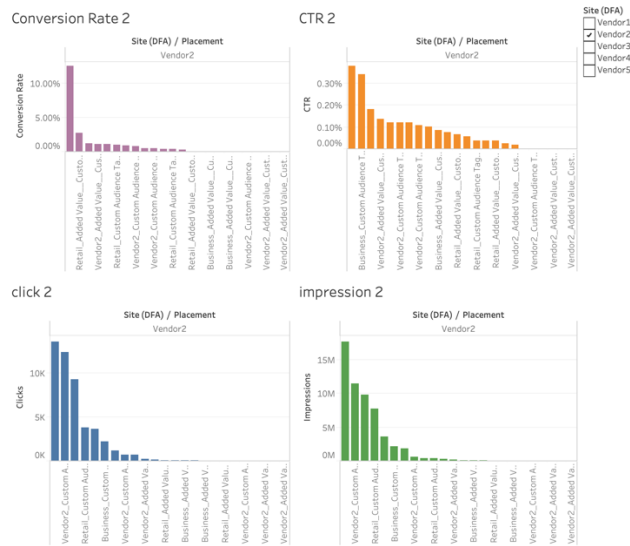
Figure 8

Figure 9

Vendor 2 has the highest number of impressions and click, but its CTR is considerably low. So maybe this website has a significant number of views, but obtusely they are not our potential customers. And also, the conversion rate is less than 0.5% which is so low. So my suggestion is to drop this vendor
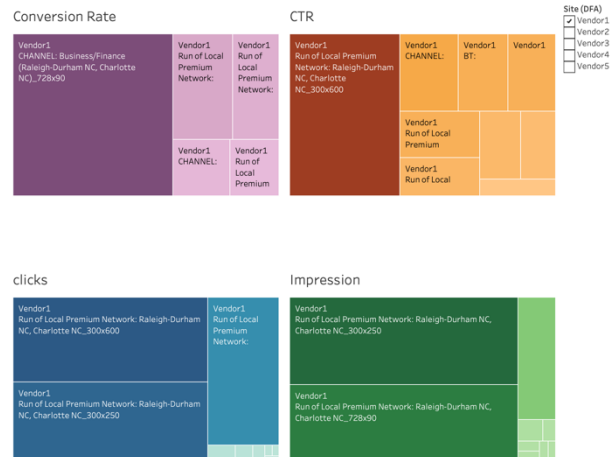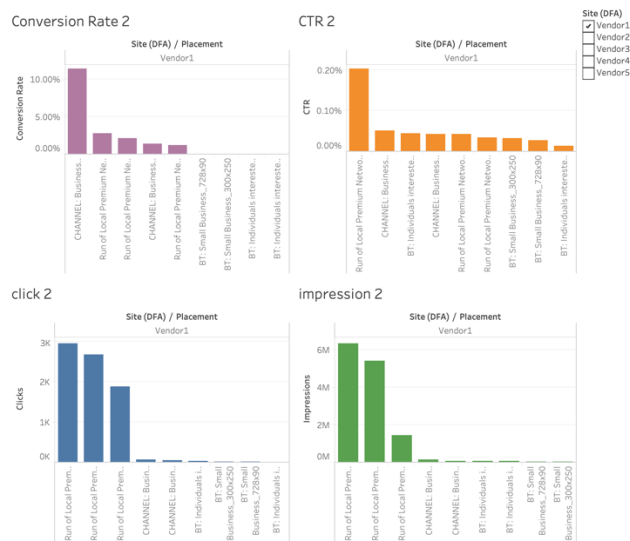
Figure 10

Figure 11

The last vendor we have is vendor 1. Although the CTR of this vendor is low, it has a reasonable conversion rate. So, there is a potential in this vendor that we need to find and unlock them.

How would you reallocate the bank's media spend, based on the available data and your selected KPIs? If you had additional data available, please outline if your approach would be the same or how it might differ.

They spent a large amount of money on vendor 2 and some placements that do not lead to a desireable Conversion Rate. They need to shift it to other kinds of Ads and vendors. For example, if they invest in vendor 3, they will reach more potential customers.
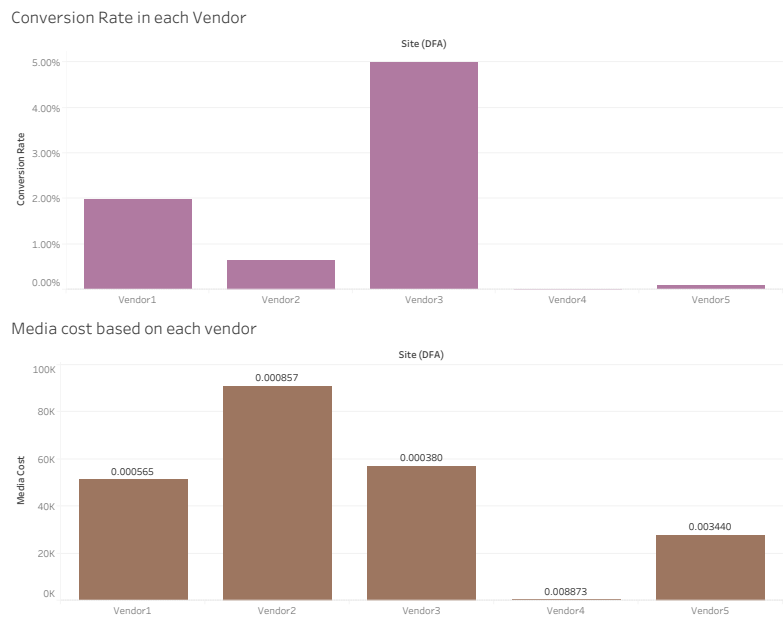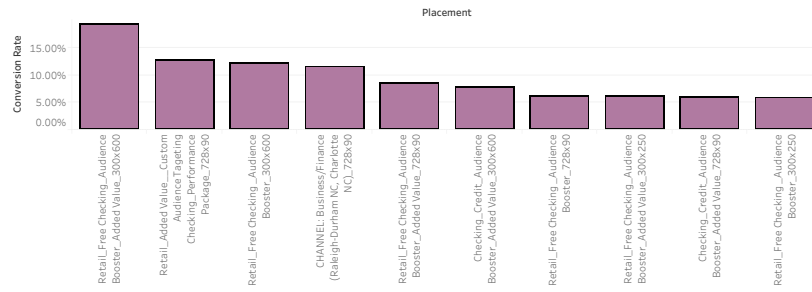

Figure 12

Conversion Rate in each Placement

Placement

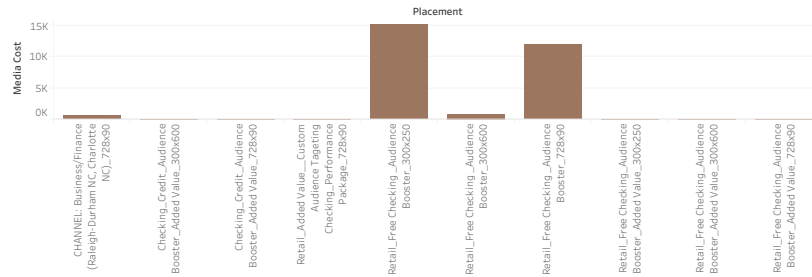## Media cost based on each placement

Placement

Figure 13

Conversion Rate in each Placement

Placement
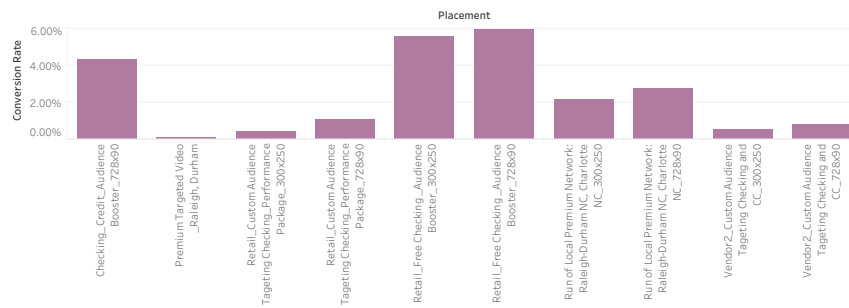
Media cost based on each placement
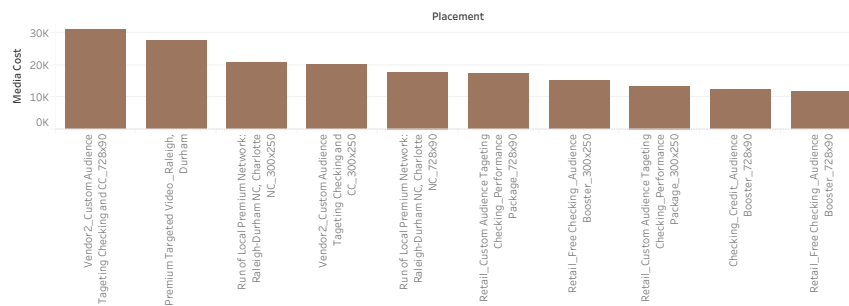
Placement

Figure 14

In figure 13, you can see the top 10 Conversion Rate based on placement. As you can see, most of the high conversion Rate placement does not have a high cost. On the other hand, in figure 14, you can see the top 10 Media Cost base on placement. Most of their budget went to waste. We need to shift money and invest in the places that have a good Conversion Rate.

conversion Rate based on vendor and placement (color by media cost)
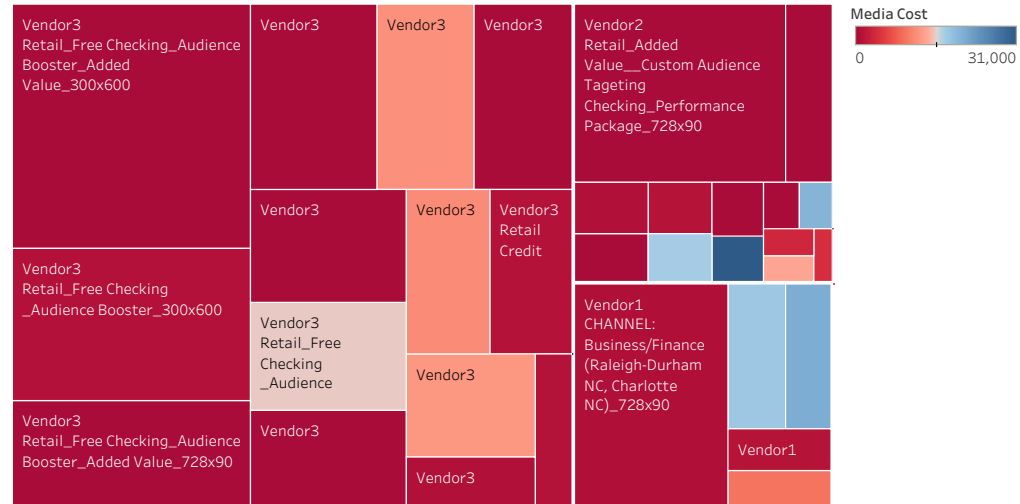
Site (DFA) and Placement. Color shows sum of Media Cost. Size shows Conversion Rate. The marks are labeled by Site (DFA) and Placement.

Figure 15

Media Cost based on vendor and placement (color by Conversion Rate)
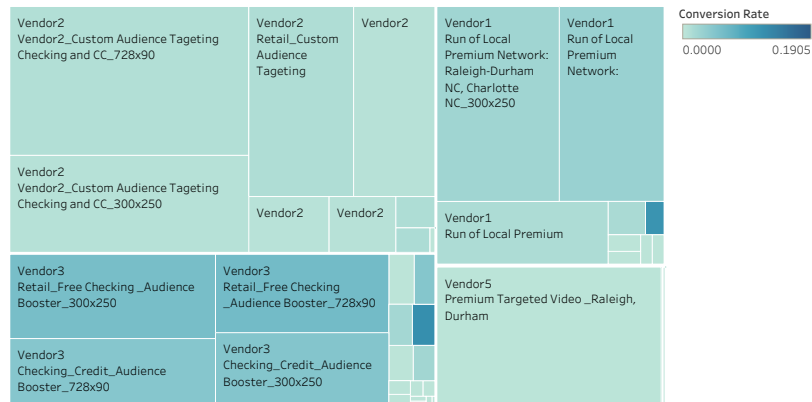
Site (DFA) and Placement. Color shows Conversion Rate. Size shows sum of Media Cost. The marks are labeled by Site (DFA) and Placement.

Figure 16

In figure 15, the size of each vendor and placement defined by the Conversion Rate, and the colour defined by Media Cost. In figure 16, the size of each vendor and placement defined by Media Cost, and the colour defined by Conversion Rate. As you can see, they need to change their strategy, because Conversion Rate and Media Cost right now have negative relation and they go opposite of each other. Everywhere we invest more money, we get fewer results.

For more details, we need to understand how they calculate the Media Cost. And if it is possible, we categorize the placement and then find a cost for each vendor and placement category and then compare it to their conversion rate, in this way we have a better and clear picture.

Exercise 2: Case Question

1. **What information/data sources would be most meaningful to the development of a smart marketing strategy for this client?**
2. **How would you leverage your data sources to measure marketing performance?**
3. **What types of analysis would you recommend ensuring the client's marketing dollars are being spent optimally in the future?**

Our client is in the early stage of marketing which is Awareness and Interest. So, our primary goal should be an impression. To have a good impression, we need to find out:

1. which features are more desirable for customers and will attract them to buy our client car rather than well-known brands? We can do this by using recent articles, papers, and videos. This will help us to understand what content and keywords we need to put in our Ads.

2. In the introduction of our brand, we need to emphasize what our electric cars bring to the table that others cannot, what advantageous our car has over others.

3. where we should advertise the car to hit our target market. In which platform that we should do the advertising that not only hit most of the potential customers but also people trust us more. For example, social media and other customer's review is more important in the automobile industry. Then we can be more specific by finding social media that have environment-friendly content and so on

4. it is fundamental to be visible for individual eyes and have good reviews and avoid any negative reviews. Most of the people narrow their research for new car base on that brand or car reviews on the internet

Moreover, the journey for buying a new car is longer than usual purchases. We should find how we can make it shorter and more pleasant for customers. More than 60% of research in the automotive world is done via smartphones, so our Ads need to be designed in a way that would be suitable for smartphones.

Our client is in the early stage of marketing which is Awareness and Interest. The first step they need to take is to present their car to people first.

AutoTrader research decided that the Web was twenty-five times more powerful than every other media resource for both Gen X automobile buyers. By being more visible to individuals in their most receptive, they can maximize their revenue opportunities. Customers have to understand what to expect from the company's car, and just how well it could fit in their lifestyles, through the advertisement. We need to explain the **advantages** of our client's car and why people would buy it and prefer it to their competitor's car. That is where you can leverage articles such as automotive lead production: sites, white paper, or even videos. Quench people's desire for advice regarding reviews, product comparisons, and business insights. The result will help us to find out what content we can put into our Ads that catch people's use, which websites we should use to place our Ad in it. And also, what method of advertising we need to use to reach out to people.

In Automobile marketing, one of the most important aspects is other people's reviews and comments regarding our car. This is more important for the automobile industry and has more impact compared to others. Usually, a customer uses online research to create a list of

vehicles and brands of interest, and then they narrow their selection down to a short-list of vehicles based on online opinions and reviews. That is why social networking is fundamental for them in their marketing. social networks are slippery tools that can backfire on the brand that doesn't use them well; at the same time, they are also one of the most effective and powerful levers to transform the "consumer" into a "prosumer."

Furthermore, we need to do west research to find out except social media, which platform count as the top platform for this industry because they will lead to more reviews. And because a car is a high-value purchase, people prefer to see this kind of advertising on fancy websites and platforms. And also, because it is an electronic car, we need to consider the high-tech media.

The customer journey for those looking to buy a car is longer and more complex than other household purchases. The average journey of an automotive sector customer can last from 5 to 12 weeks. Being easy to be search and the ability to personalize that search is two aspects that we should always have in mind. We can collect data from its CRM systems but also from its website and social channels. The collection and analysis of data allow companies to segment the target audience and divide it into clusters of users with similar and homogeneous characteristics, behaviours, and probable needs. We can use the result to trail our Ads to different vendors.

Exercise 3: Your Best Work

Please share an example of a project that you are proud of that includes the use of data and analysis techniques.

My capstone project of my master's degree in Data Analytics was about predictive the productivity of our client's employees in the future. They want to find out who has the most negative impact on productivity, so base on their policies, they improve the situation. We do that by using Tableau and Python and make a forecasting model.

They gave us 7 data set that each has 2k+ records without a data dictionary (which makes our work more challenging because we did not know that each column represents).

The first step was cleaning the data sets. My teammates (3 of my classmates) and I decided to use Python. We found missing values and the percentage of them. For those that had a small percentage, we decide to omit them. And for those that had a bigger percentage, we suggest filling with a mean (for those that were a range of the number), mode, or medium (for those that were cardinal number). After asking our client and get the approval for each method that we suggested to fill missing values, we subset them. After that, we did some box plots the see if we have any outline, and we solve those two.

Then we did some Explore Data Analysis (EDA) with Tableau and made some bar and line plots to figure out if there is any correlation between features that we have. We also did Python to make a correlation analysis between them to be sure there is a relationship between them. We used the result to come up with the model that we thought it would predict productivity. We sent it to our client, and they gave us some feedback, and we adjust the model until we reach the model that our client was happy about it.

After we get our client approval for the model, we assumed base on the vision each employee belongs to one group, and we group them, then use the model to predict each group productivity.

If the productivity of the group was lower than the company standard, then we would analysis each employee productivity, predict it, and if it was decreasing in the future and become lower than the standard, it would report the employee ID to the manager so they can solve the problem by their policies.

In this project, I was a team leader, and also all of the codings in Python was written by one of my teammates and me.