



Senior Data Analyst – Case Study

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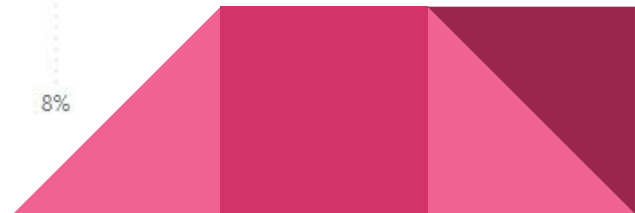
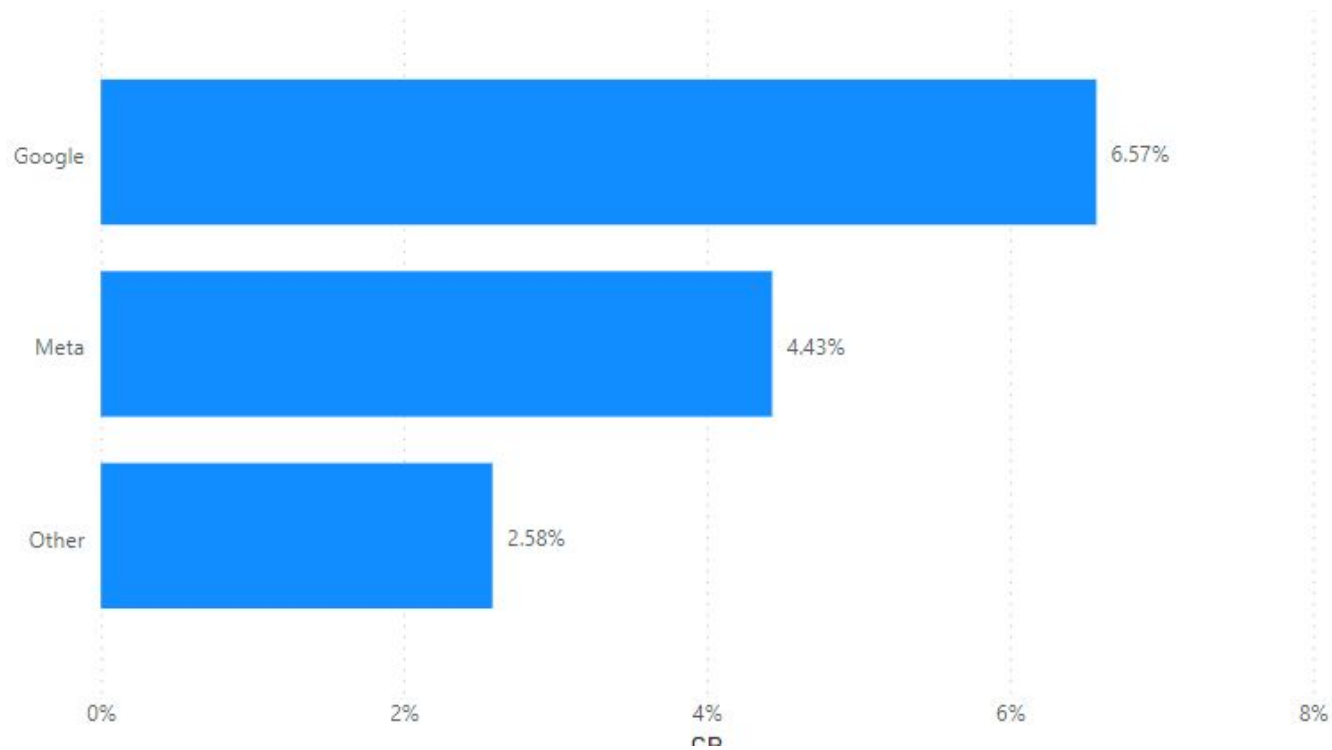
Which KPIs would you choose to measure performance and why?

I would chose the following KPIs to measure performance:

- **Conversion Time** (time to convert a lead to a customer)
- **Conversion Rate** (count customers /count Leads)
- **CPAs vs Revenue per lead** (source and date)
- **Total Revenue** per source and date
- **Profitability % per lead**, source and date

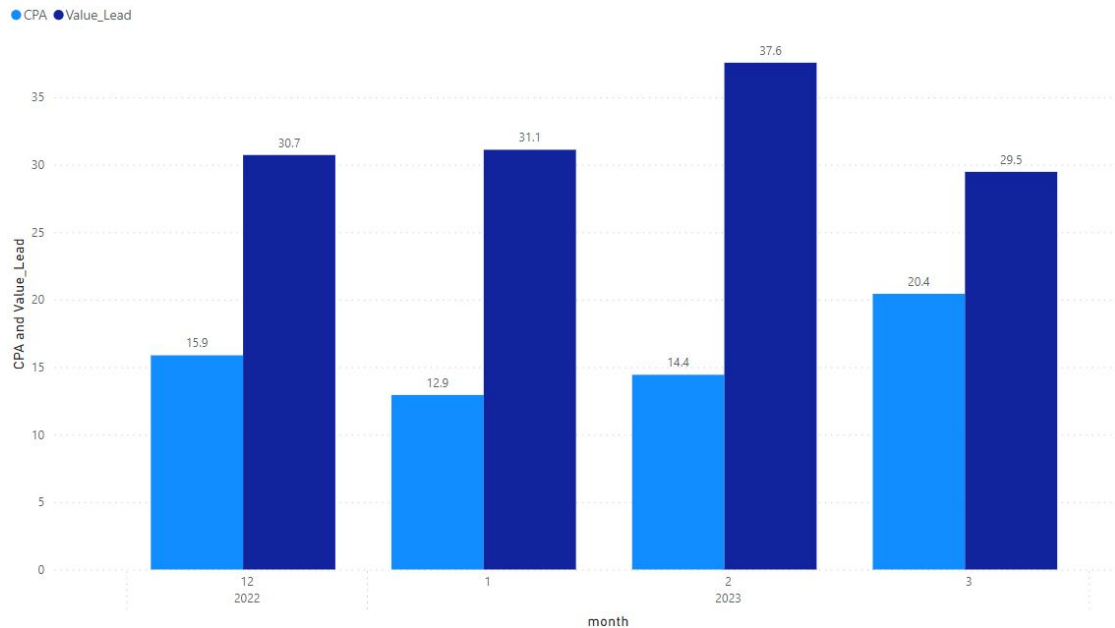


Conversion Rate



CPA vs Value per lead

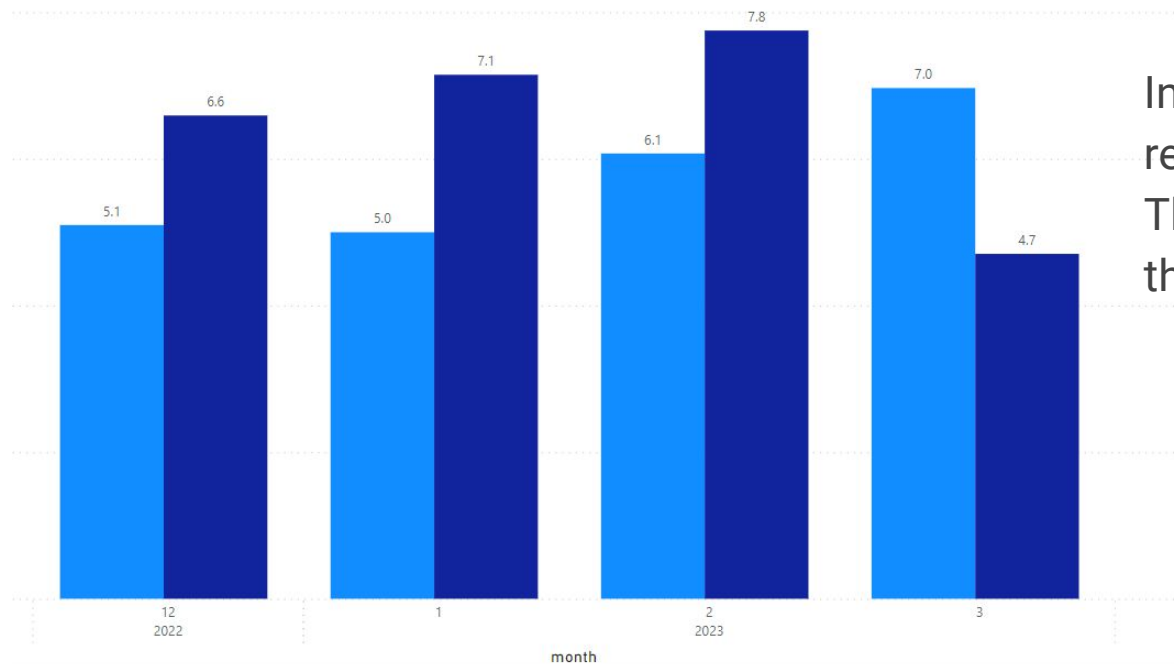
Google



We can see that the traffic per google constantly maintains the value over the CPA

CPA vs Value per lead

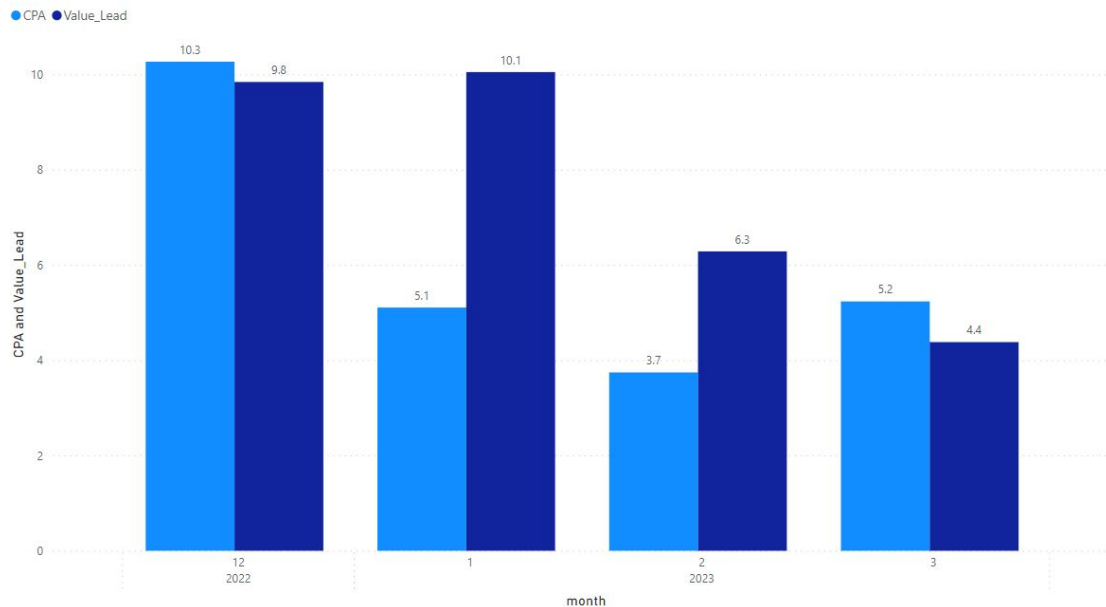
Meta



In the last month we see that the revenue is lower than the CPA. This might be because not all the leads were converted

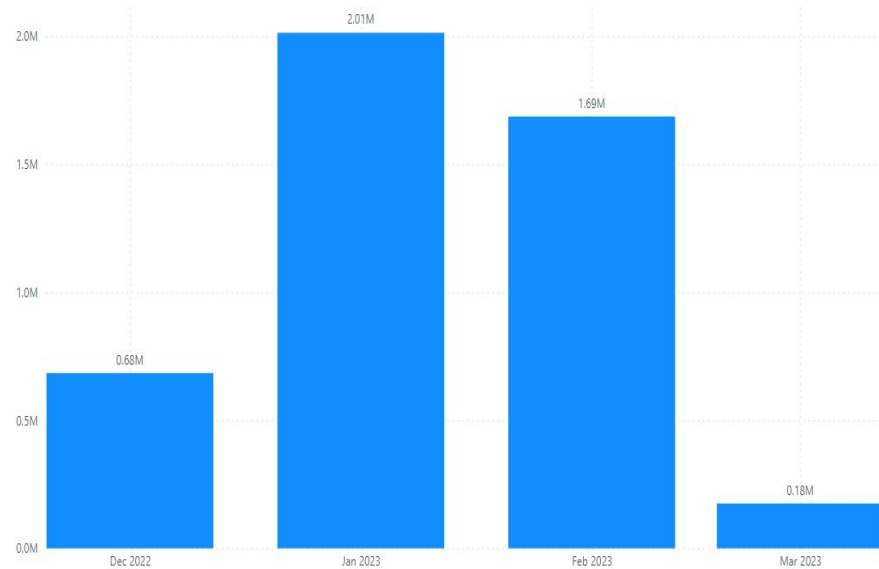
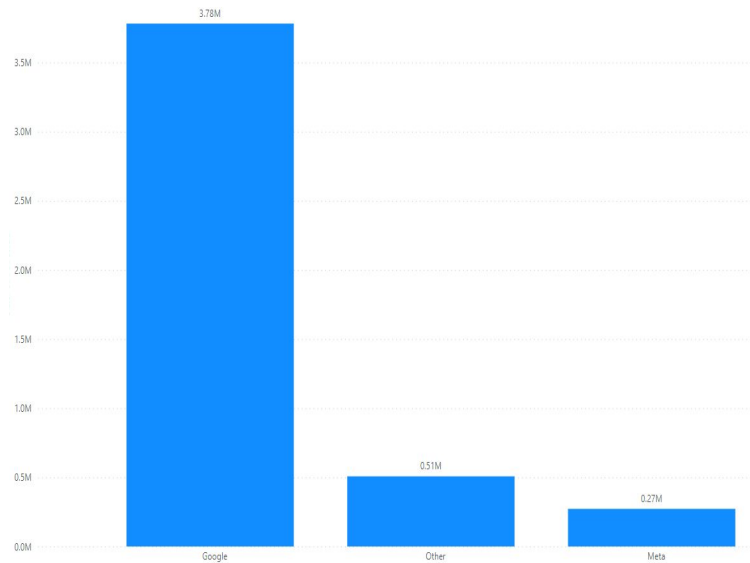
CPA vs Value per lead

Others

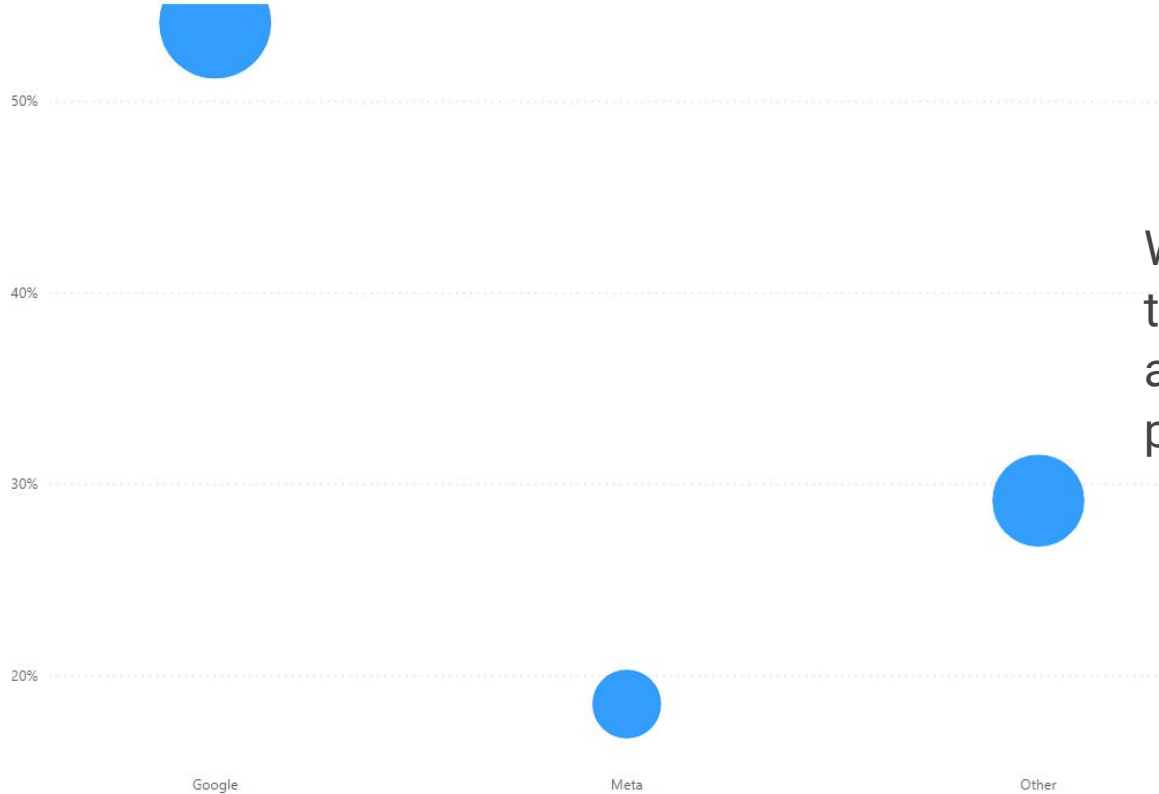


We can see that the leads from other sources has often CPAs higher than value

Total Revenue

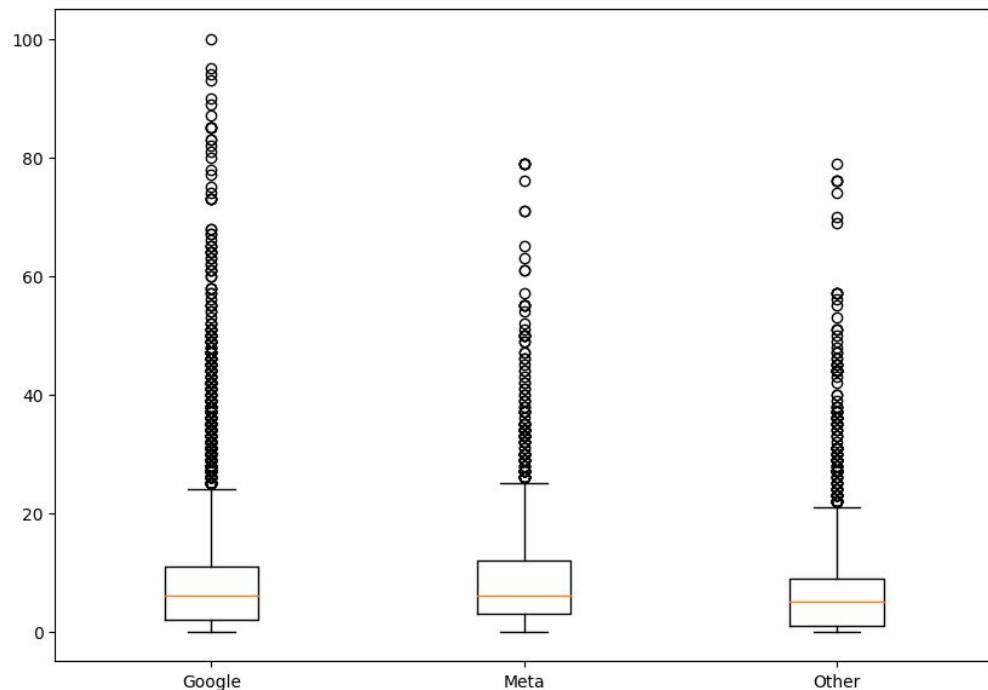


Profitability per lead and number of leads



We can see that Google has the highest number of leads and they are the most profitable

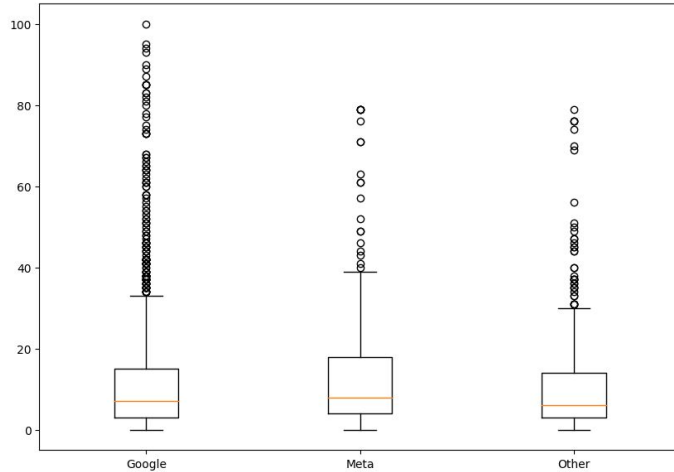
Conversion time (days) per traffic source



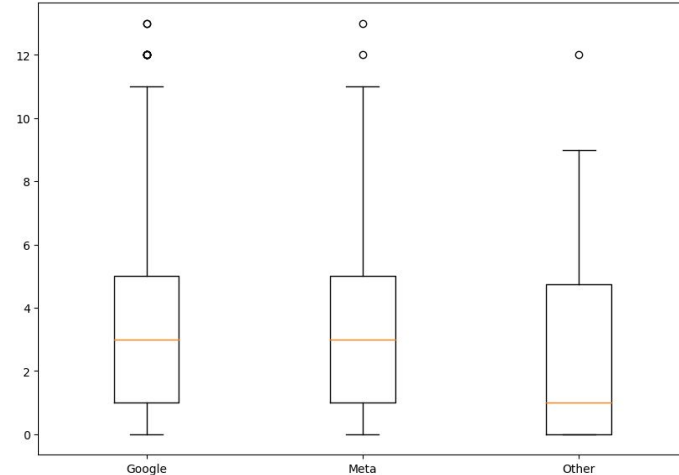
Percentile 25	Percentile 50	Percentile 75	Percentile 100	average
2	6	11	100	8.575813037
3	6	12	79	9.572158365
1	5	9	79	7.993969298

Conversion time (days) per traffic source (Dec vs Mar)

December



March



To evaluate performance on this KPI it should be measure on a monthly basis, and giving it time so the leads can convert. In this example, the KPI of March is not comparable to December. As December had more time to convert the leads

Conversion time

This KPI is important to measure the quality of the leads and how the sales team is performing.



Notes

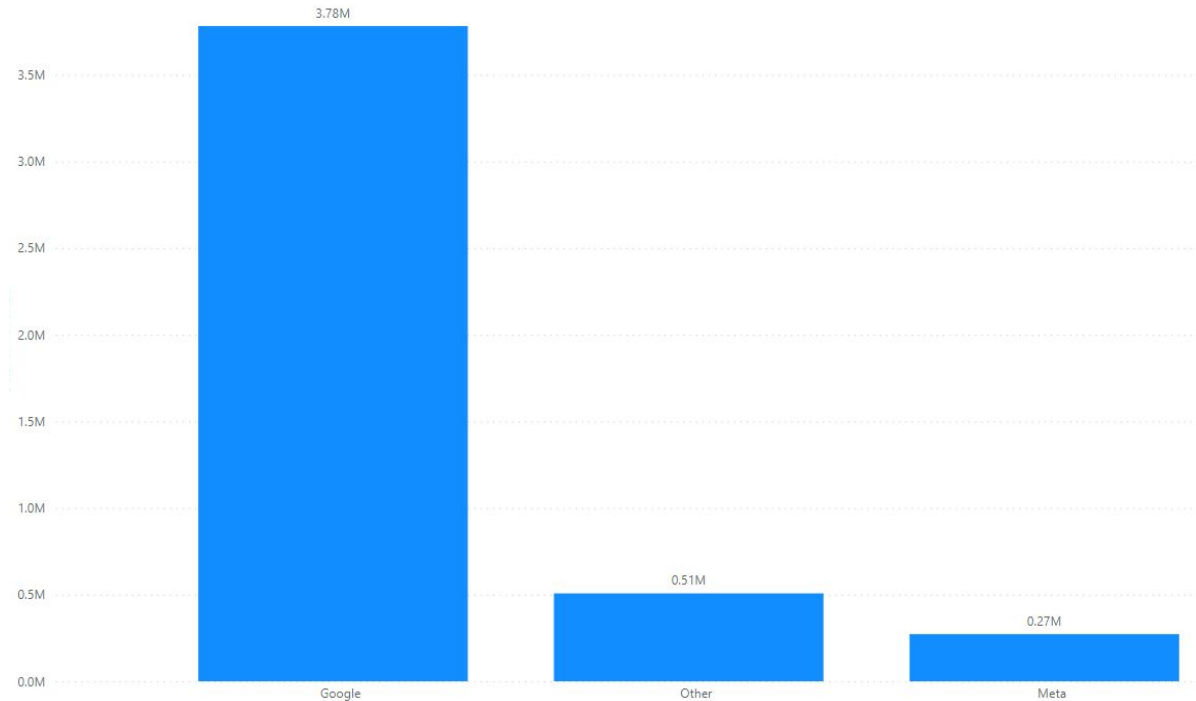
It is highly advisable to show each of the KPI for each of the months with the same period of time.

This means, all the months with the same time after the end date of the month. In that way, we would be comparing the same and not running into wrong conclusion.

This is a case study where we only have 4 months of data. We are going to take all the 4 months for the calculations, but if we would be running it in a monthly basis, we would need to do as above.



How profitable is this investment overall? Which marketing source is the most profitable?



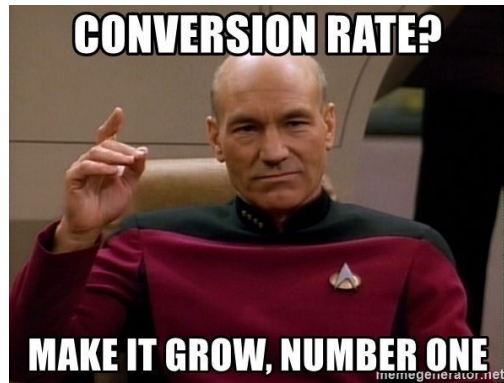
How would you assess the development of the quality of leads in terms of likelihood of becoming a customer

Conversion Rate

This is one of the most important KPIs. Directly related to the revenue.

The math is simple, if we increase the conversion rate, our CPA will be lower and the revenue will be higher as we converted more leads.

Therefore, keep a good and constant track in this KPI will show how the business is performing. It also shows incidences that we might have in online campaigns.

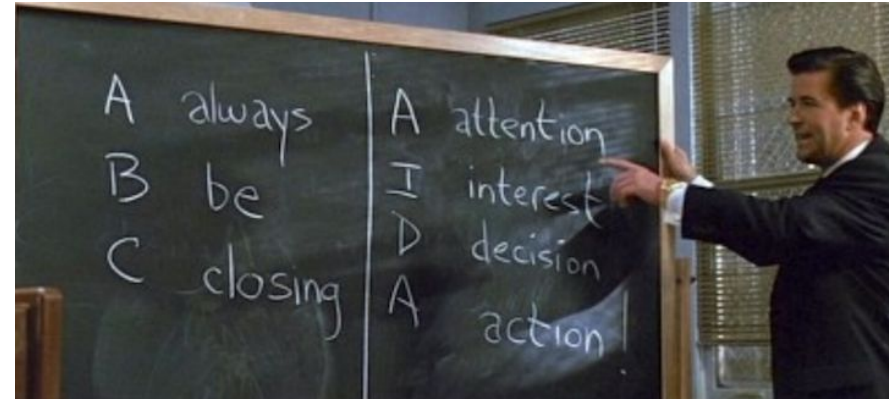


How would you describe sales efficiency development in the given period of time?

Conversion time

This KPI is important to measure the quality of the leads and how the sales team is performing.

We can use it comparing to previous months how selling is working



Marketing stakeholders have an opportunity to increase investment for the upcoming months. What is your advice in which channel to invest and why

I advice to invest in Google.

It has the best CR and the highest profitability. Also, if we look at the value over the months, it keeps being consistent without major changes.



During given period of time sales team was running A/B test with the hypothesis, that active pitching of trial sessions has a positive impact on lead-2-customer conversion rate.



A/B Test

The Student's t-Test is a statistical hypothesis test for testing whether two samples are expected to have been drawn from the same population.

The test works by checking the means from two samples to see if they are significantly different from each other.

It does this by calculating the standard error in the difference between means, which can be interpreted to see how likely the difference is, if the two samples have the same mean (the null hypothesis).

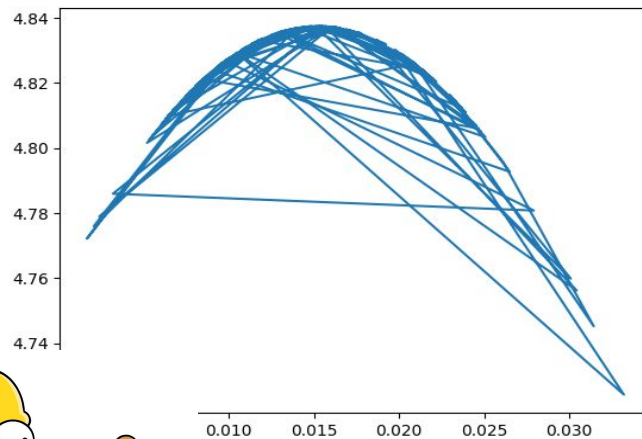
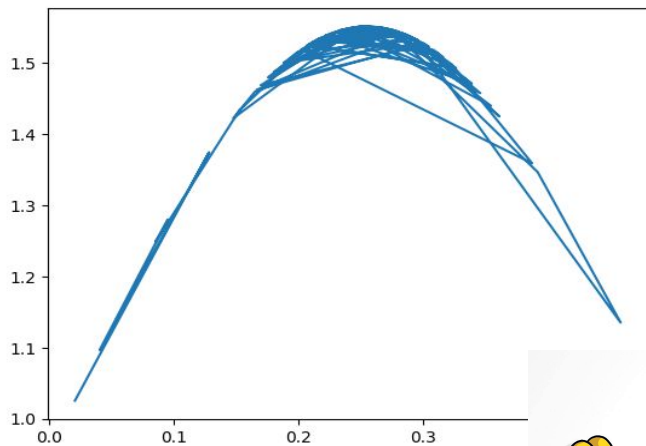


T-Student



T-Student

It follows normality!

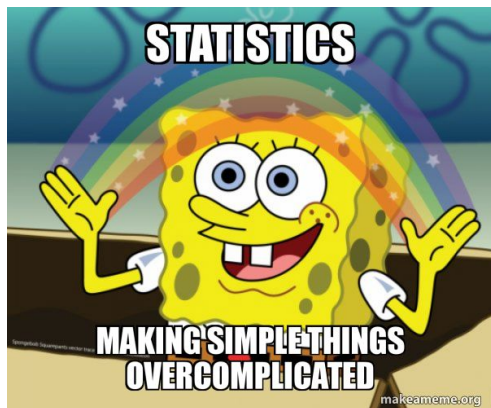


T-Student

We can definitely say that it has positive impact in the conversion rate with 95% of confidence.

The average CR with trial is 25,5% and without the trial is 1.52%.

This difference applies to all traffic sources so it should be applied globally



Future Setups

- For future setups I would create a field in the integer that we can know from which campaign it came from.
- Have a database where we record all the campaigns that we are launching.
- Launch an application that reach to the database and is able for the business to launch A/B Tests without supervision of IT.

