Question 1: What insights have you gathered on the existing channel performance?

I will analyze the campaign data from three perspectives, which are activity-related metrics, conversion rate metrics, and velocity metrics.

<Conv Volume By Channel>

Channel	
Nerdwallet	9
Display	11
Organic Search	40
Business Insider	43
DRTV	52
CNN Money	64
OTT	68
Paid Search	86
Facebook	211
Grand Total	**584**

1. Facebook generates the most volume. **211** conversion, which is **36%** of total conversions.
2. Paid Search generates the most volume from search channels. **86** conversions
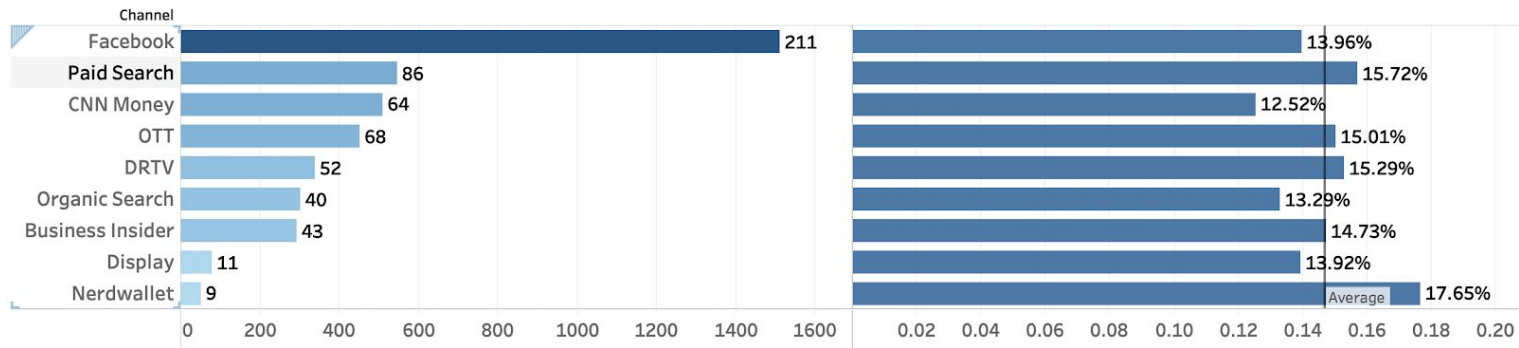3. OTT generates the most volume from steaming channels. **68** conversions

<Click Volume By Channel>

Channel	
Nerdwallet	51
Display	79
Organic Search	301
Business Insider	292
DRTV	340
CNN Money	511
OTT	453
Paid Search	547
Facebook	1,511
Grand Total	**4,085**

1. **37%** of total visits generated from the Facebook platform, which is in line with conversion performance.
2. Nerdwallet drives the least clicks, which is in line with its conversion volume.

Now we can divide in for in-depth analysis on the conversion rate.

<Conv. Volume/Conv. Rate>

Channel	Conv. Volume	Conv. Rate
Facebook	211	13.96%
Paid Search	86	15.72%
CNN Money	64	12.52%
OTT	68	15.01%
DRTV	52	15.29%
Organic Search	40	13.29%
Business Insider	43	14.73%
Display	11	13.92%
Nerdwallet	9	17.65% (Average)

1. Conversion rates appear to be consistent across all channels. Generating the most conversions, Facebook Conv. rate is only a little below the average line. The social platform looks like an ideal channel to generate volume as well as maintain healthy conv. rate, but I also need to analyze from the cost perspective.
2. Although delivering the least conversion, Nerdwallet has the highest conv. rate. It may indicate its good traffic quality. I want to further investigate the campaign from the conv. cost and lead value perspective to see its potential.
3. OTT & DRTV have a similar conv. rate performance.

We have an overview of conversion rates. Now I want to see the correlation among device types, creative types, message types and etc.

1. Device performance by Chanel (Display Ad Only) I filter out tbd & and only show display channels to keep data relevant and easy to read.

Device	Channel		
desktop	Nerdwallet		33.33%
	Display		14.29%
	Business Insider		15.00%
	CNN Money		6.90%
	Facebook		12.43%
	Total		**16.39%**
mobile	Nerdwallet		5.88%
	Display		14.08%
	Business Insider		14.88%
	CNN Money		12.82%
	Facebook		15.03%
	Total		**12.54%**
tablet	Business Insider		0.00%
	CNN Money		12.50%
	Facebook		12.77%
	Total		**8.42%**

Device
- [ ] (All)
- [x] desktop
- [x] mobile
- [x] tablet
- [ ] tbd
- [ ] tv

Channel
- [ ] (All)
- [x] Business Insider
- [x] CNN Money
- [x] Display
- [ ] DRTV
- [x] Facebook
- [x] Nerdwallet
- [ ] Organic Search
- [ ] OTT
- [ ] Paid Search

a. In general, Conversion rate Desktop > Mobile > Tablet. The result is in line with our expectations.

b. Nerdwallet Desktop has a 33.33% conversion rate that doesn't necessarily reflect the real performance since we don't have enough data points to be confident.

c. CNN money doesn't work well on Desktop, Nerdwallet conversion rate on mobile is way below the average.

2. Streaming channel & Search

Channel	Device		
DRTV	desktop		20.00%
	mobile		16.49%
	tablet		7.69%
	tv		12.50%
	Total		**14.17%**
OTT	desktop		14.71%
	mobile		15.92%
	tablet		10.00%
	tv		11.43%
	Total		**13.01%**

Channel	Device		
Organic Search	desktop		20.00%
	mobile		12.70%
	tablet		0.00%
	Total		**10.90%**
Paid Search	desktop		20.48%
	mobile		15.14%
	tablet		10.00%
	Total		**15.21%**

a. Desktop works very well on search.
b. Desktop and mobile both outperform TV on streaming channels. Desktop works the best from the DRTV channel.
c. The streaming channel only generated 68 + 52 conversions across 3 months. The device performance conclusion is likely to be biased.

Now let's take a look at the performance change over time.

Weekly conversion volume by Channel
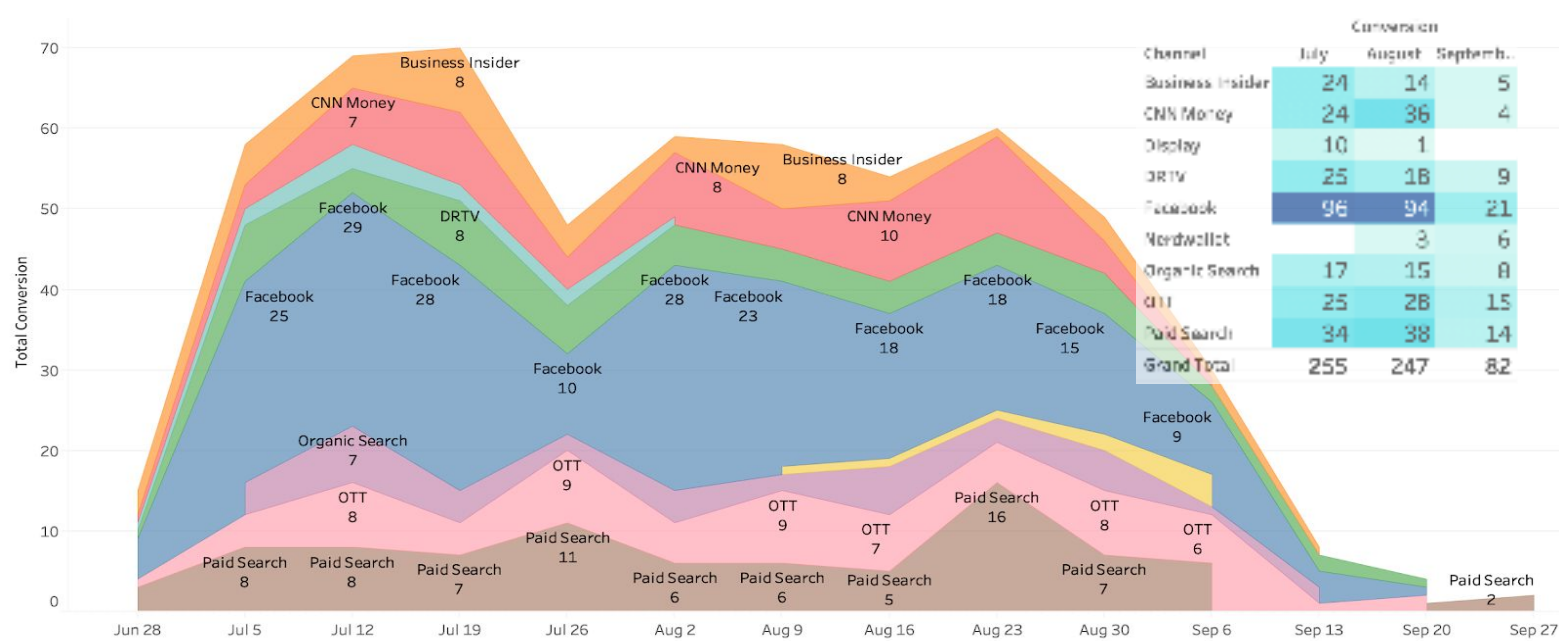
a. Conversion volumes in July and August are very similar, but there is a major drop in September. Campaign on Nerdwallet and Paid search didn't have any conversion after Sep 6, and the rest of the channel reduced the conversion dramatically in the following weeks.

b. If we only look at July and August **conversion** data, **Facebook, Paid Search, OTT** have a relatively steady conversion volume. **CNN Money** has better conversion performance in Aug than the prior month. Now we take a look at the following chart to investigate if there is any major change in visit volume.

Channel	Visited		
	July	August	Septemb..
Business Insider	165	108	19
CNN Money	261	232	18
Display	72	7	
DRTV	172	138	30
Facebook	826	621	64
Nerdwallet		41	10
Organic Search	157	128	16
OTT	225	195	33
Paid Search	290	223	34

Channel	Conversion		
	July	August	Septemb..
Business Insider	24	14	5
CNN Money	24	36	4
Display	10	1	
DRTV	25	18	9
Facebook	96	94	21
Nerdwallet		3	6
Organic Search	17	15	8
OTT	25	28	15
Paid Search	34	38	14

c. **Facebook, Paid Search, OTT, CNN money** visit volume all dropped in Aug comparing to July, but their corresponding conversion all increased. This indicates an increase in conversion rate as well as better campaign optimization.

We move on to look at Creative performance.

The **first** sheet is **conversion volume breakdown by creative and channel**. The **second** sheet is the corresponding **conversion rate.**

| | Creative | | | | | | | |
Channel	A	B	C	D	E	F	G	Grand Total
Business Insider	3	10	8	1	7	5	9	43
CNN Money	11	7	15	5	7	10	9	64
Display	1	1	3	1	1	4	0	11
DRTV	3	8	13	3	9	7	9	52
Facebook	24	17	30	36	31	37	36	211
Nerdwallet	2	3	1	1	0	1	1	9
Organic Search	2	2	4	6	9	12	5	40
OTT	6	10	8	12	10	13	9	68
Paid Search	8	11	9	20	7	10	21	86
Grand Total	60	69	91	85	81	99	99	584
CNN Money	23.91%	14.29%	15.79%	5.75%	10.14%	11.11%	12.00%	12.52%
Display	20.00%	14.29%	18.75%	6.67%	8.33%	22.22%	0.00%	13.92%
DRTV	11.11%	23.53%	24.07%	6.82%	13.04%	12.28%	16.36%	15.29%
Facebook	18.05%	11.49%	12.24%	13.43%	13.72%	13.55%	16.51%	13.96%
Nerdwallet	40.00%	33.33%	8.33%	12.50%	0.00%	20.00%	14.29%	17.65%
Organic Search	7.69%	6.90%	7.27%	13.64%	17.31%	22.64%	11.90%	13.29%
OTT	12.77%	25.64%	9.52%	14.81%	12.35%	16.25%	21.95%	15.01%
Paid Search	17.39%	21.15%	10.84%	16.81%	8.64%	12.50%	24.42%	15.72%
Ave Conv %	16.71%	16.95%	13.06%	11.90%	12.74%	14.08%	17.40%	14.30%

a. Creative **G** generates the most conversion with the highest ave. Conv. rate. Creative G should have high priority, however, we also need to take into consideration of CPA and individual channel performance.

b. On Facebook, Creative **A** has the highest conversion rate on Facebook, but it only generates 24 conversions. I will compare budget allocation and spending between Creative A and G to see if we set up the test properly. We may want to set up a separate testing campaign to test performance on Creative A & G.

c. Creative **B** work the best on **DRTV** and **OTT** streaming channel.

d. Creative **F** works the best on **Organic search**, **G** performs the best on **Paid Search**.

In addition:

\<Impression to Conversion Velocity\>

Channel	
Business Insider	3.930
CNN Money	5.781
Display	7.545
DRTV	8.365
Facebook	6.237
Nerdwallet	9.667
Organic Search	6.475
OTT	6.074
Paid Search	5.349

I calculate the average time (day) it takes from the last impression to the conversion for each channel. It may not have a direct message on the campaign performance analysis, but it gives us an idea of how should we set up the conversion window.

Last but not least. Message Type

Message/Conversion

Message ty..	Channel	
Price	Business Insider	7
	CNN Money	10
	DRTV	8
	Facebook	190
	Organic Search	5
	OTT	9
	Paid Search	11
	Total	240
Protect Your Family	Business Insider	5
	CNN Money	1
	Display	11
	DRTV	7
	Facebook	15
	Organic Search	5
	OTT	5
	Paid Search	8
	Total	57
Speed	Facebook	6
	Total	6

The datasheet doesn't have enough data points to accurately calculate the message conversion rate per channel. (some last_served_impression_message data missing) so we only analyze from the conversion volume perspective.
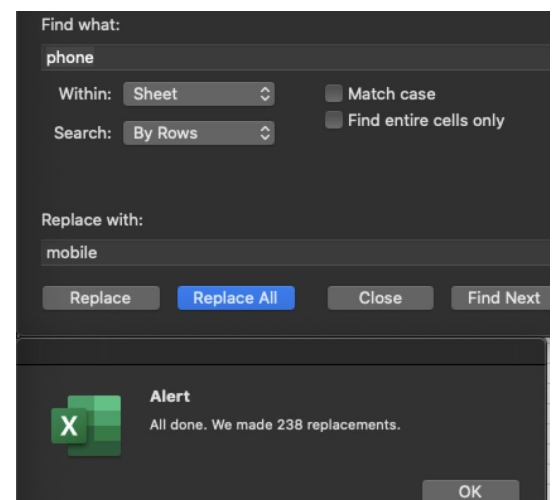
    a.   Apparently, Price is the main angle to generate conversion, and it works the best on Facebook.

    b.   Protect Your Family work the best on Facebook compared to other channels, but it generates far less conversion than Price angle.

Question 2: Given that the results are imperfect and incomplete, what did you do to mitigate or reason through any gaps in the results (e.g., what questions do you have and what assumptions did you make?)

I wanted to showcase my analysis by using the Tableau dashboard. The idea is to use data visualization to effectively communicate findings and results to shareholders.

The original spreadsheet has a few issues I have to make modifications to, but overall, there is sufficient data for me to conduct a majority of the campaign performance analysis. **Spending and cost matrics** are things I will need to ask for. I assumed each channel had a **standard delivery ad pacing** with unchanged daily budgets throughtout July and Aug.

    a.   Replace phone with mobile.

    b.   Unify the date format to yyyy.mm.dd hh.mm.ss (for example 2020.07.01 12:53:00) It will come useful if I need to calculate the time difference.

    c.   In submitted_at_utc column, the data contain submitted time and conversion ID. (for example 2020-07-01T21:53:43.746Z). I take out the conversion ID and matching the date format.

    d.   I consider **last_served_impression_utc** as the time the last impression was served. **Visited_at_utc** is the time visitors land on our pages.

Find what:
phone

Within: Sheet
Search: By Rows

☐ Match case
☐ Find entire cells only

Replace with:
mobile

[Replace] [Replace All] [Close] [Find Next]

Alert
All done. We made 238 replacements.

[OK]

Submitted_at_utc is the time visitors submit the form. Now I can count the total impression, visit, and conversion.

e. The Tbd (to be determined) device only takes 5.6% of the total record. I didn't include this part of the data in my analysis.

f. Nearly half of the data is missing on the last_served_impression_messag column, (2405 out of 4085) and it happens to all channels except for Facebook. It could result from campaign tracking software, so I leave the message analysis at the end of my report.

Question 3: If you had a budget of $300,000, how would you recommend we allocate that to existing channels to maximize conversions and ROAS?

1. To better allocate the budget, we need to have a complete view of the campaign's past performance by channel. Identify which channel generates the most volume, which channel has the best lead quality, which channel has the highest ROI (or ROAS). The campaign scalability and ROI level should be our primary focus.

2. Maintain targeted CAC by balancing volume and user intent. Facebook might be the best channel to generate a large volume of leads at a cheaper price, but the search network can be an important channel to generate high-quality leads, even the channel doesn't have good ROAS. So maintain lead quality should be a factor in the budget allocation. In summary, what percentage of total lead generation will each channel be responsible for?

3. Diversify channel and risk. Don't depend on one channel to generate the most volume, especially Facebook.

In our case. I will allocate the budget by investing in **Facebook, Search, SEO, OTT, and CNN Money**. Facebook is the main volume channel. Search and Organic Search are channels we can't give up. OTT is the best traffic source in streaming channels. CNN money generated the most volume in native networks.

Facebook 140,000
Paid Search 60,000
CNN Money 35,000
OTT 40,000
Organic Search 25,000
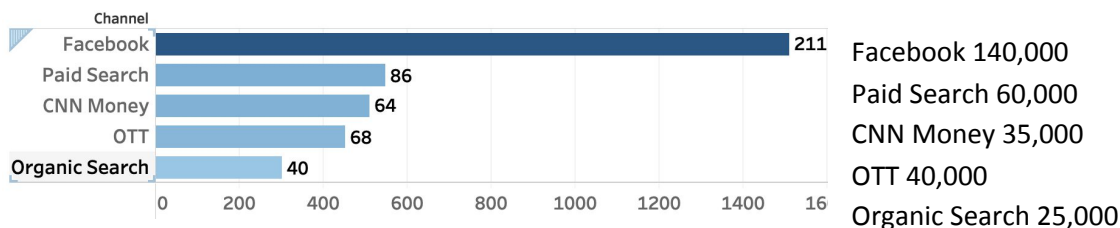
Questions: How would you set up a test for a completely new channel? (What channel you would test, what things would you think about, what budget would you recommend, testing timeline, etc)

1. **Research and Spy.** We want to know which channels our main competitors are spending money on. Estimate how much volume they generate from those channels. We can use ad spy tools to find out more insights. Such as native.adplexity.com for native DSP. By searching our competitor, we also find channels they don't have strong existence.

2. **Utilize campaign assets.** When setup up a test for a completely new channel, I would start with ad assets (e.g., messages, creatives, landing pages) that are proven to work from other channels. Although one thing works well in one channel doesn't necessarily mean it will work in other channels, it has a better chance to work. For example, if I want to launch a test campaign on Outbrain, I would start with the landing page and creatives that work well on CNN money. If I want to launch a test campaign on bing.com, I would start with keywords and ad copy that work well on google search.

3. **Don't ignore minority audiences and their channels.** E.g., A Spanish campaign targets the entire U.S. with Spanish speaking audiences on the social media platform. You may find your CPM is way below the average because there is little competition.

4. **Channel with good scalability.** I would consider **Outbrain** or **Taboola** to test. They have a large network of websites to test. I can utilize the campaign assets.

5. **Test Period. 2 Week + 6 Weeks.** 1-2 weeks to prepare all related campaign material. For example, ad copy, creatives design, angles, landing pages, tracking solution, research, content spy, integration. 6 weeks of campaign testing and optimization.

6. **Budget. 20 X conversion value as the daily budget + fixed cost.** For example, if the lead value at $15 from the display network, on this new display channel, I would set at least 300 daily budgets. Plus other related costs. A new channel testing budget could be at $15,000.