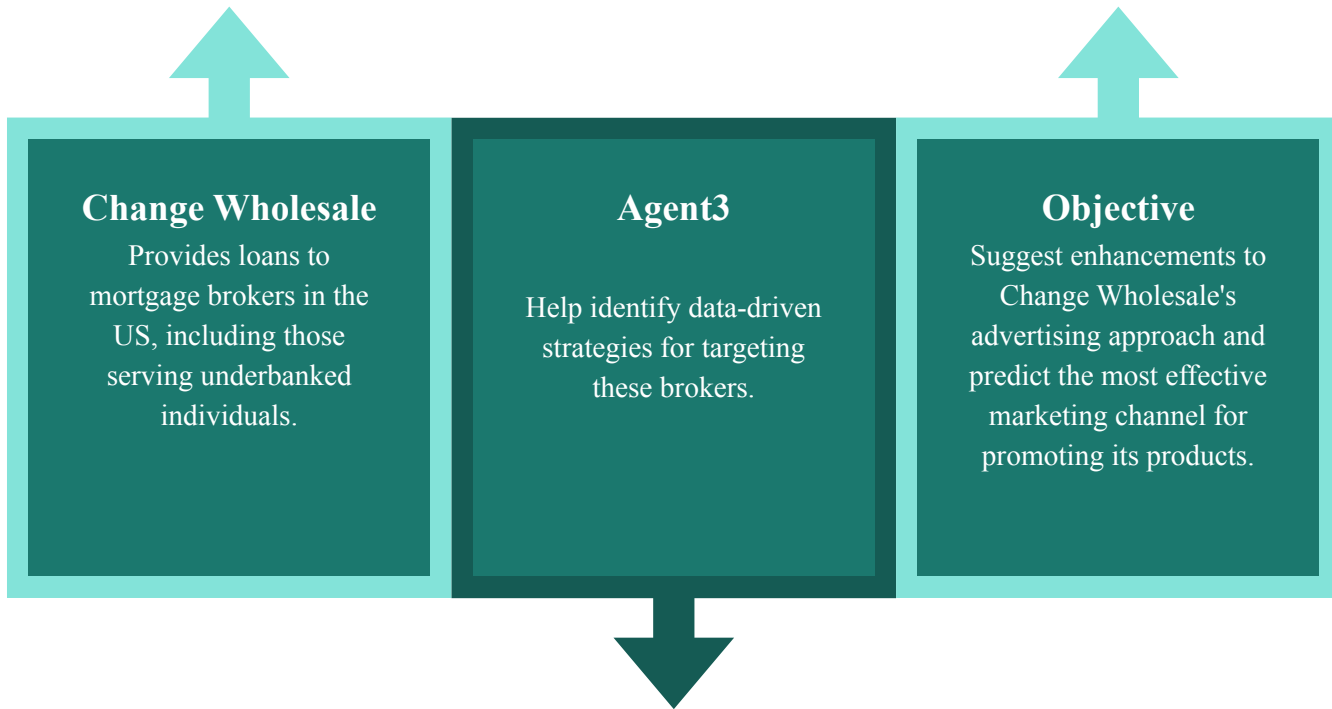# Agent3 - Data Study:

An analysis based on Change Wholesale 2022 campaigns

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Overview - Change Wholesale

Change Wholesale
Provides loans to mortgage brokers in the US, including those serving underbanked individuals.

Agent3
Help identify data-driven strategies for targeting these brokers.

Objective
Suggest enhancements to Change Wholesale's advertising approach and predict the most effective marketing channel for promoting its products.

Strategy - Customer Acquisition & Retention & Marketing

Customer Acquisition - Converting Existing Users

Acquire new business from brokers who have registered on the Change Wholesale portal but are not yet trading with the company.

- Follow up with leads
- Offer Incentives
- Engagement via mail newsletters

Retention - Increasing the Stickiness For Users

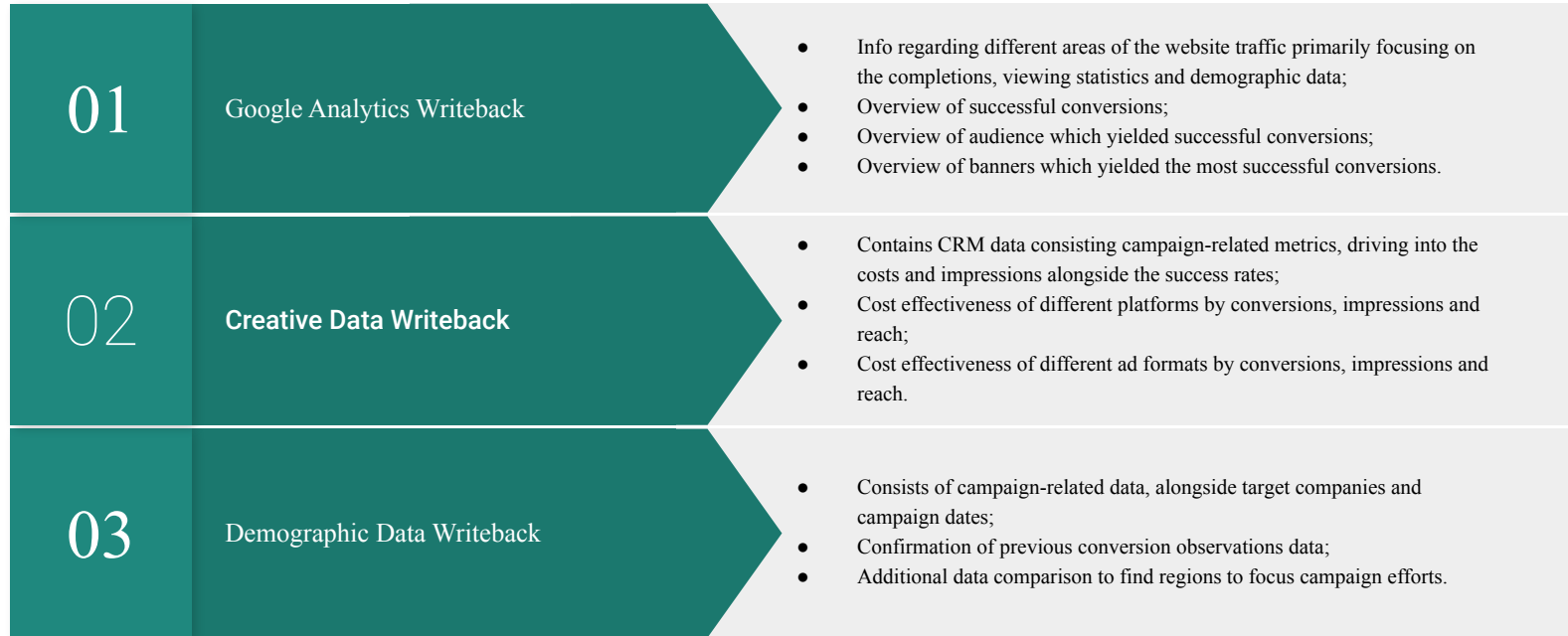Increase engagement with newly registered and prospective brokers

- Personalised Communications
- Hosting Events
- Leverage Social Media

Advertisements - Extending Reach and Increasing Impressions

Expand the company's reach to encourage more brokers to sign up.

- Develop Strong Online Presence
- Partner with Industry Associations
- Effective Online Advertisements

Initial Data Analysis & Methodology

01   Google Analytics Writeback

- Info regarding different areas of the website traffic primarily focusing on the completions, viewing statistics and demographic data;
- Overview of successful conversions;
- Overview of audience which yielded successful conversions;
- Overview of banners which yielded the most successful conversions.

02   **Creative Data Writeback**

- Contains CRM data consisting campaign-related metrics, driving into the costs and impressions alongside the success rates;
- Cost effectiveness of different platforms by conversions, impressions and reach;
- Cost effectiveness of different ad formats by conversions, impressions and reach.

03   Demographic Data Writeback

- Consists of campaign-related data, alongside target companies and campaign dates;
- Confirmation of previous conversion observations data;
- Additional data comparison to find regions to focus campaign efforts.

Primary investigations - Google Analytics

Main focus Google Analytics "Completions":

- This is the primary variable we are concerned with.
- Business objectives for this study are related to campaign success, we dropped values where no campaign information was present.

Conclusions:

- Most completions generated via general targeting (audience 6),
- Other more significant completions are completed by non registered loan officers (audience 4 & 5)
- By far the most completions come via Google SEM, many more than all others combined.
- Trade media and LinkedIn seem to be other fruitful channels to pursue completions.
- Visualisations show that the ad format CPC was the most effective for completions, but was difficult to compare to the remaining data due to poor data quality.

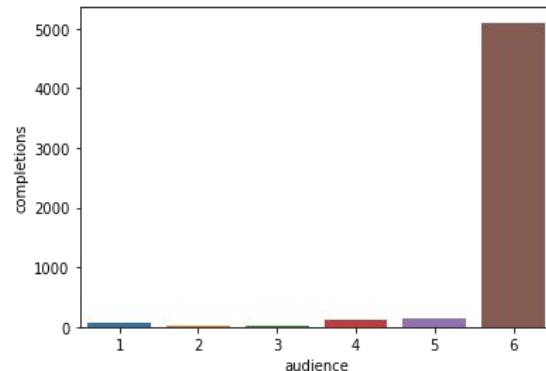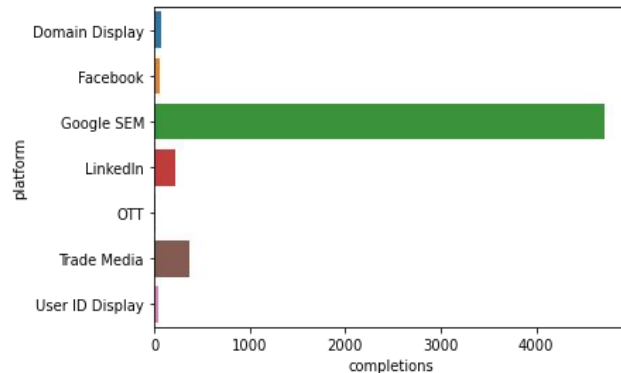**Figure 1: Breakdown of completions by audience**

Figure 2: Breakdown of completions by platform

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Findings - Action Buttons on Company Website

% of Completions	Findings	Potential Problems
68%	• Learn More (Community Mortgage) button was the most effective in getting successful conversions	• High completion rate, potentially good content. However as the initial funnel there are rooms for improvement.
15%	• Start Closing More	• Generates some interest, may potentially require better hooks and content.
4-6%	• Get Approved • Learn More (Our Story) • Learn More (Closer Twins Banner)	• The Story, banner or approved process may not be innovative or complicated to the user.
0-1%	• Form Submissions • Closer Twins Page Video Play • Broker Login • Home Page Video Play	• Brokers are not using the website, due to either poor UX/UI design, no little engagement to the relevant users or technical errors.

CTR (click-through-rate) analysis - Demographics data 1/2

Further supporting analysis on the demographics data showing the popularity (use cases) of various platforms and targeted audience and its effectiveness:

- LinkedIn most popular platform for advertisements but are <u>ineffective</u>.
- Domain/ User ID Display equally popular but <u>ineffective</u>.
- Google SEM - very effective.
- Audience: General targeting marginally more effective than other audience targeting.

Figure 5: Breakdown of CTR and ad usage by platform

platform	count	CTR
LinkedIn	86535	0.000
Domain Display	41067	0.001
User ID Display	15519	0.002
Google SEM	1992	1.000
Trade Media	398	1.000
OTT	106	1.000
Facebook	31	1.000

Figure 6: Breakdown of CTR and ad usage by audience

audience	count	CTR
4	63035	0.001
5	31760	0.002
General Targetting	20539	0.004
1	16101	0.001
3	8505	0.002
2	5708	0.003

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CTR analysis - Demographics data 2/2

Analysing the various Ad Formats, it can be shown that:

- Display & Video seemed to be the most used formats leading with very low CTR.
- No meaningful difference between Ad Formats with mean impression above 1 (not specifically targeted).

Figure 7: Breakdown of CTR and ad usage by ad formats

	ad_format	Count	Impression mean	CTR mean
5	Display	39191	117	0.002
19	Video	38782	27	0.000
18	Single image	18462	18	0.002
8	Follower ads	15019	49	0.000
4	Carousel	12639	67	0.001
13	Native	9363	47	0.001
16	Remarketing	4094	60	0.001
15	No lock campaign	1424	40	0.002
1	Audio	1374	8	0.000
6	Display - Interactive	1366	46	0.002
2	Banner	819	222	0.001
7	Dsc	582	30	0.001

Investigation for cost effectiveness - summary

- Cost effectiveness by spending and clicks highlights that CPC ads (which are google SEM ads) are the most cost effective ads.
- This however is not reflective of the impressions and reach generated, as the basis of CPC ads: once the budget is used up in clicks the ad stops showing and does not generate anymore attention on the ad.
- Following the trendlines for cost effectiveness:
  - Native ads are the most cost effective method to generate a high number of impressions and follower ads for reach.
  - Display ads are also feasible method for both but having a wider range of variation.

Completions (General Traffic vs Campaign)

Overall the completion breakdown shows larger number of completions for general traffic during campaign timelines.

On the other hand, the bounce rate* for general traffic is much larger than for Campaigns, showing that targeted campaign efforts do lead to desired results.

* Bounce rate is **the percentage of sessions that were not engaged sessions** *(Source: Google Analytics).*

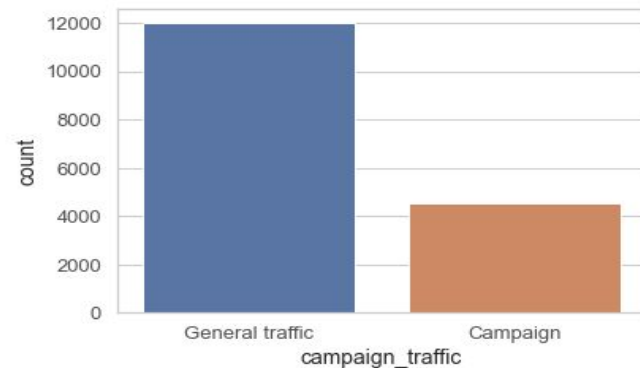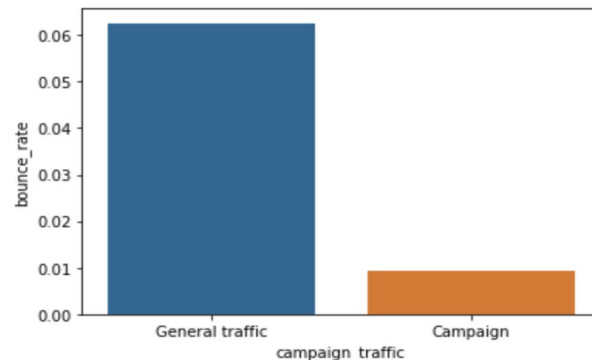**Figure 8.1: Breakdown of completions by traffic origin**

**Figure 8.2: Breakdown of bounce rates by traffic origin**

Time series on Completions (Campaigns)

Conclusion from time series plot:

- Through campaigns there is a minimum in July and a maximum in September.
- A recurring trend completions increasing and reaching a maximum and then abruptly dropping to a minimum every 3 months from April.

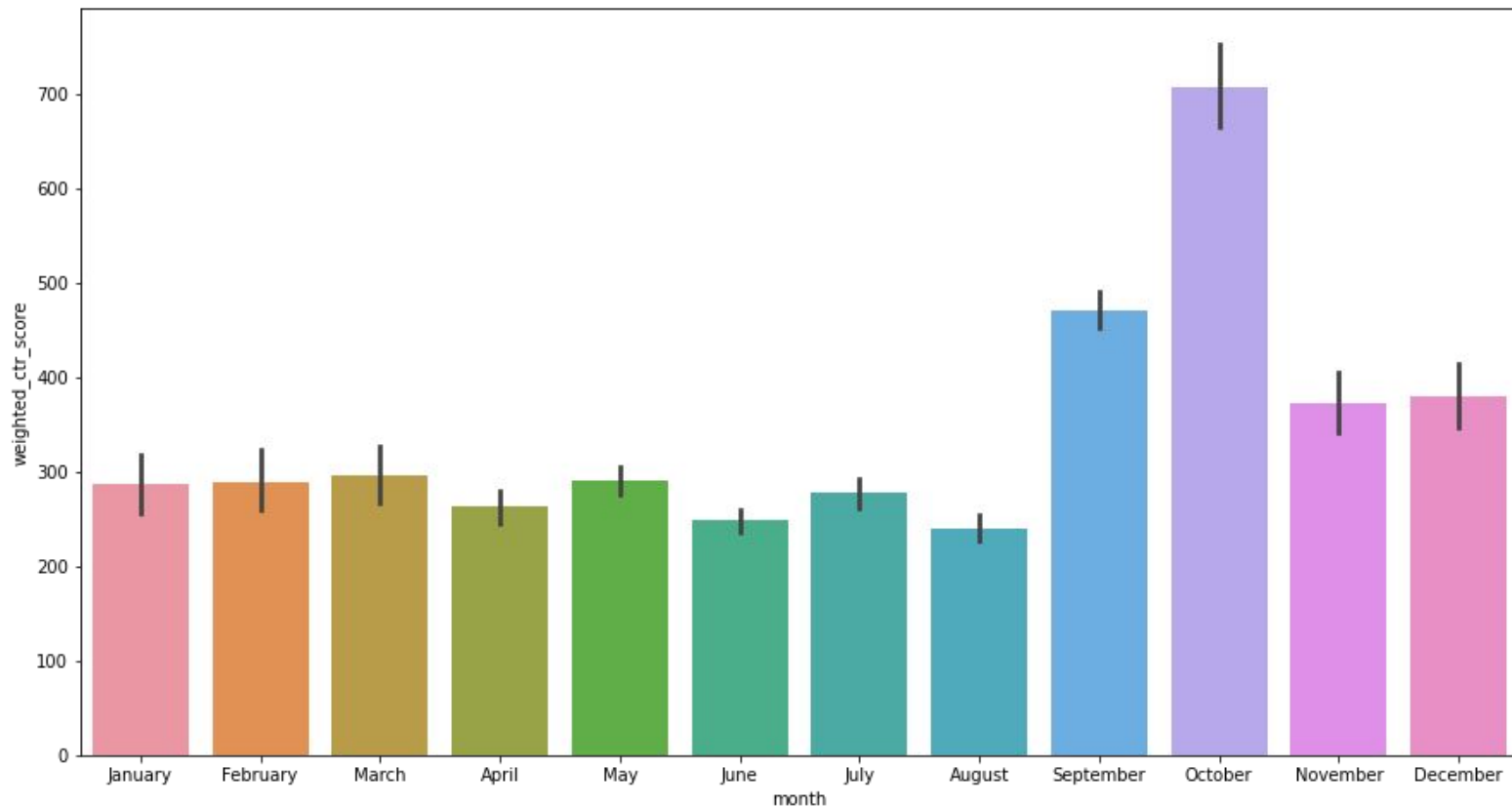**Figure 9: Time series of campaign related completions**
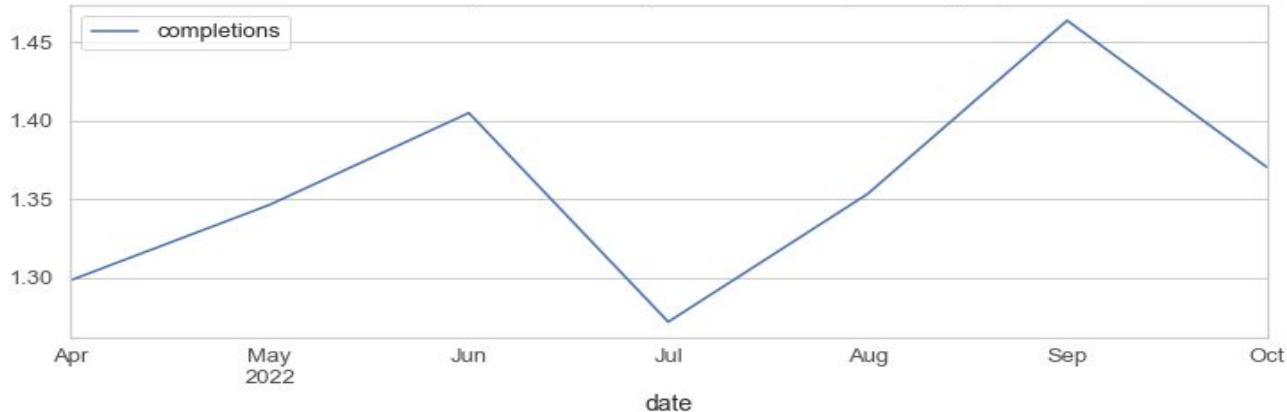
Time series on Completions (General Traffic)
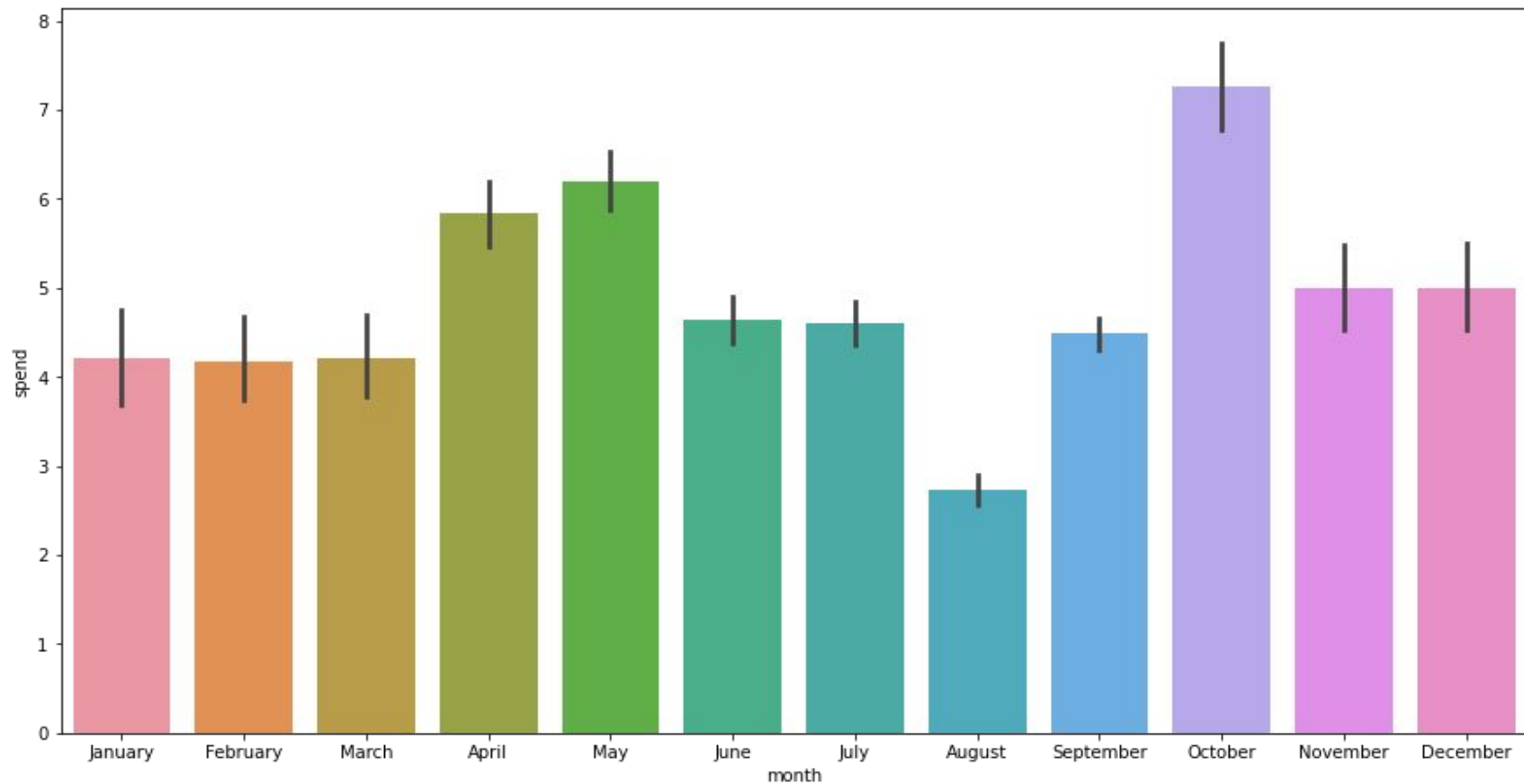
In general we see the completions through general traffic is more than campaigns, we do see the same drop in the Summer months.

Figure 10: Time series of general traffic related completions
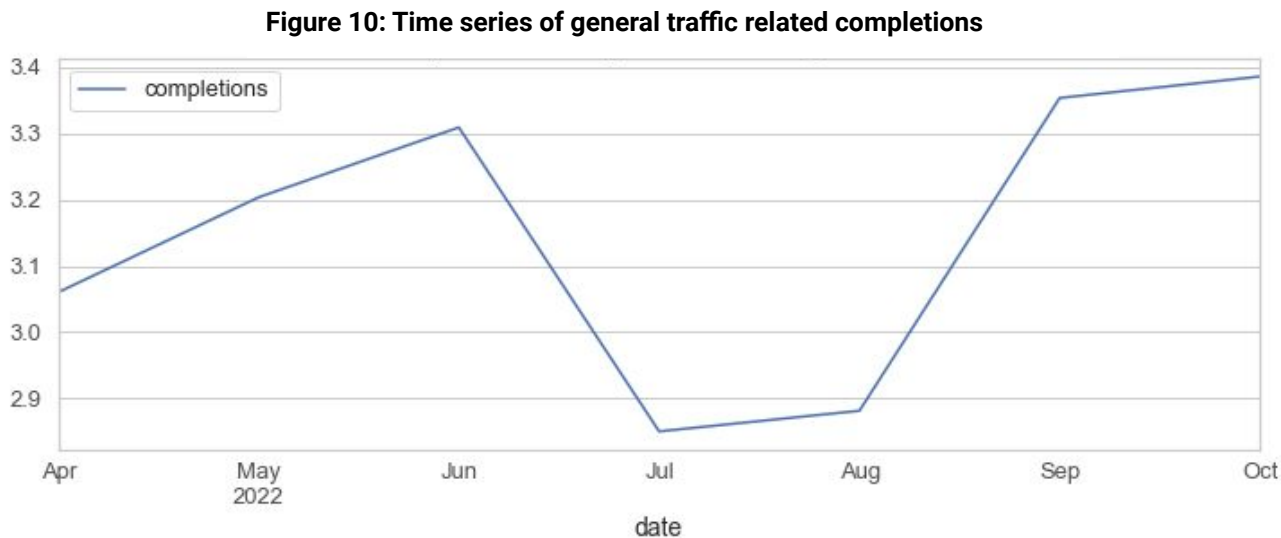
Weighted CTR score by month

Spend per month

CTR prediction model

We created a CTR prediction model(regression) that can predict the CTR efficiently given an ad format, the spend and the month.

Main observations were:

- Ad format and Month played the main role on predicting the value of the CTR.
- Spend was not as important as a predictor for CTR
- While high spend in some months results in a higher CTR score e.g November, October and September. High spend in the other months does not result in a high CTR score, e.g May, April and July.
- Taking into consideration the model and graphs, in the months where there is a mismatch between spend and CTR we focus most of our spend towards ad format(banner and display) if our main objective is to improve the CTR score.
- Overall we should focus our efforts on optimizing the ad format for each month to give the best results for the CTR score.

USA - Largest Ethnicity Groups (2020)

Area to concentrate marketing:

- South California
- South Texas
- New Mexico
- "Lower South" - Mississippi, Alabama, Georgia, South Carolina
- Washington DC
- New York City area

**Figure 11: Breakdown of US regions by majority demographic groups**

- Native American
- White
- Hispanic or Latino
- African American
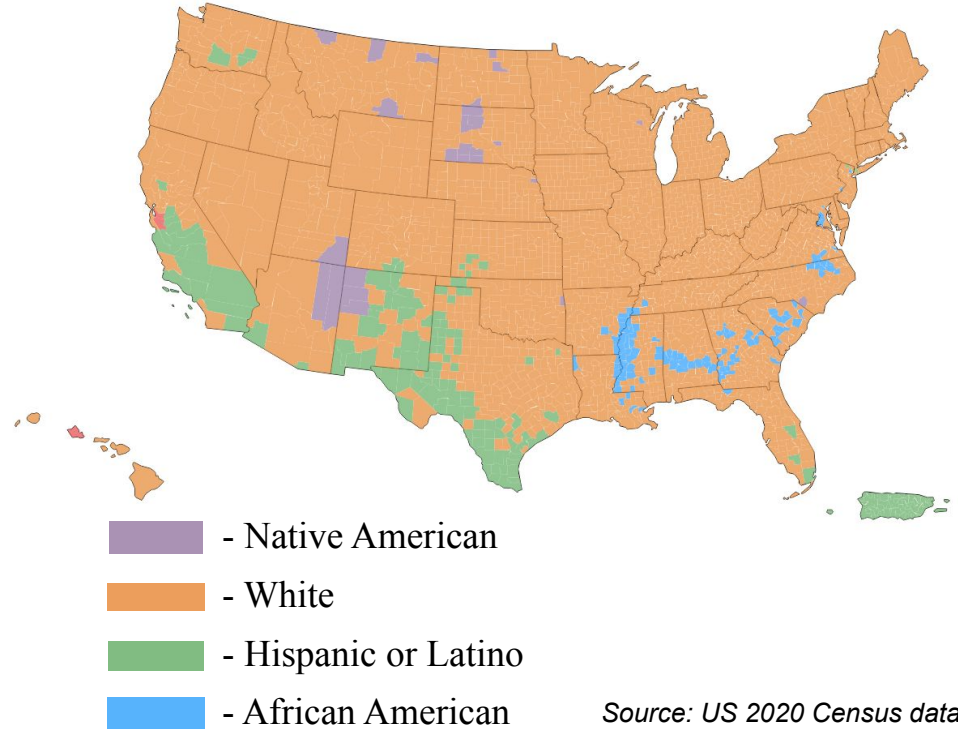
Source: US 2020 Census data

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GA - top 10 sessions (all US cities)

Figure 12.1: Top 10 total sessions by city from GA data.

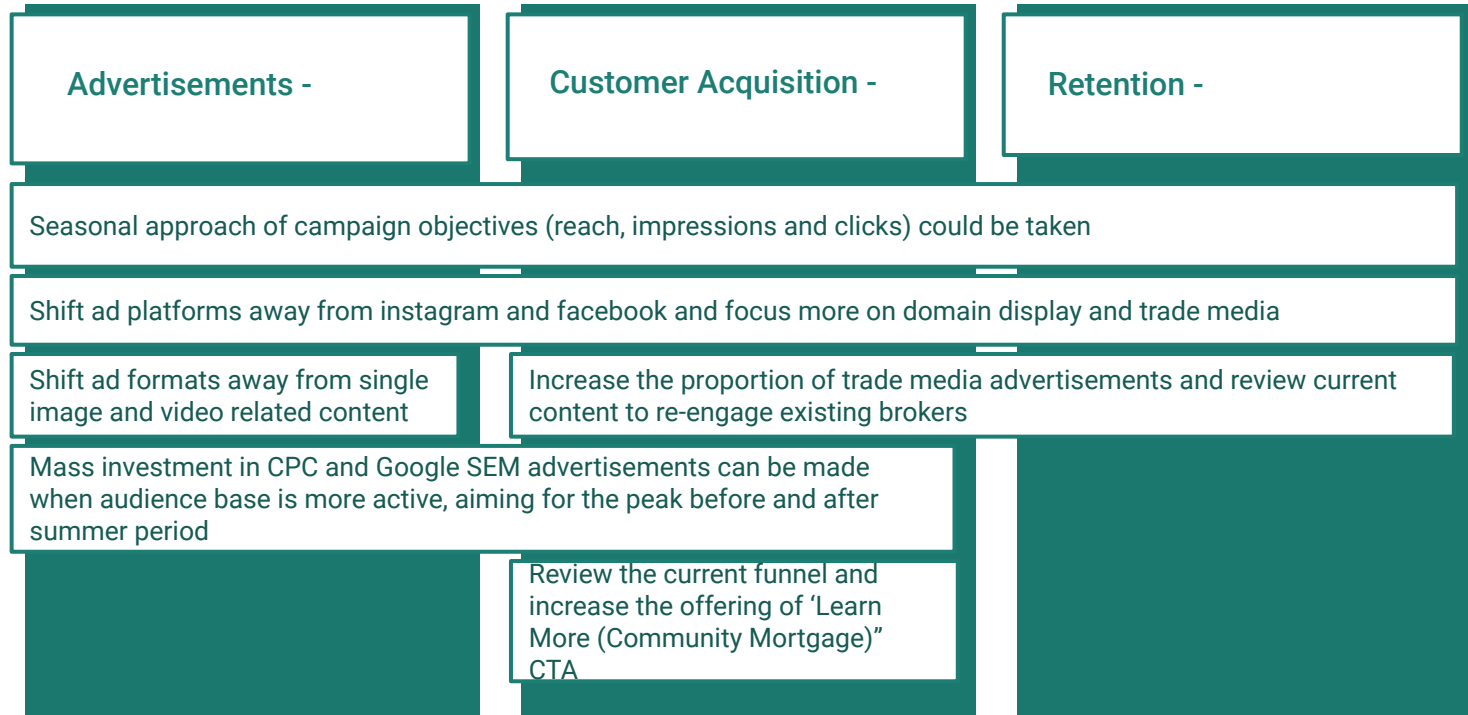|	city	total_sessions
732	Columbus	5234.0
2099	Los Angeles	2853.0
2546	New York	1701.0
1737	Irvine	1067.0
633	Chicago	917.0
2255	Mebane	856.0
3243	San Diego	741.0
83	Anaheim	705.0
850	Dallas	608.0
2686	Oklahoma City	589.0

Figure 12.2: overlay top 10 GA sessions on US Census map
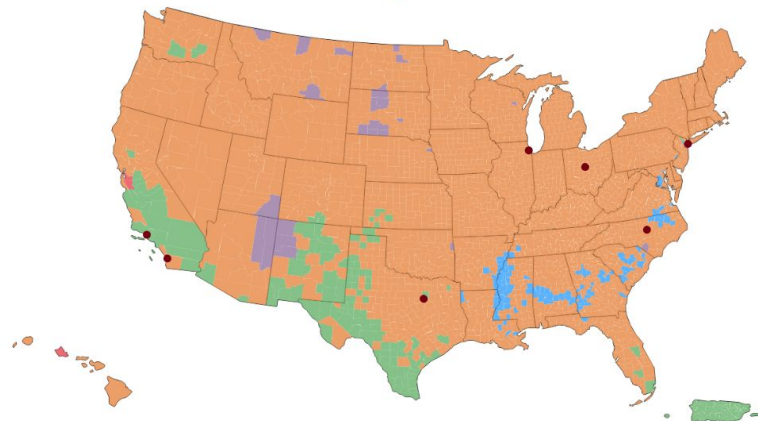
"Google Analytics records a session every single time someone visits your website. A session starts right away when someone loads a page and ends after 30 minutes of inactivity."

Source: Databox.com

Suggestions

Advertisements -

Customer Acquisition -

Retention -

Seasonal approach of campaign objectives (reach, impressions and clicks) could be taken

Shift ad platforms away from instagram and facebook and focus more on domain display and trade media

Shift ad formats away from single image and video related content

Increase the proportion of trade media advertisements and review current content to re-engage existing brokers

Mass investment in CPC and Google SEM advertisements can be made when audience base is more active, aiming for the peak before and after summer period

Review the current funnel and increase the offering of 'Learn More (Community Mortgage)" CTA

Q&A