



# DataDucks



**StratusLink Communications Campaign Analytics**  
Driving Customer Acquisition Through Data Excellence

Cohort 574

COOP Careers Data Analytics Capstone • Fall 2025



# Today's Agenda

## 1. Introduction

Client overview & campaign goals

## 2. Audience Analysis

Segment performance & personas

## 3. Spatial Analysis

Geographic performance insights

## 4. Creative Analysis

Ad format & messaging analysis

## 5. Inventory Analysis

Media spending optimization

## 6. Recommendations

Strategic roadmap & next steps



# 1. Introduction

Client overview & campaign goals





# Meet Our Client: StratusLink Communications



National telecommunications provider serving 80+ million customers across urban, suburban, and rural U.S. regions

## Core Services:

- Mobile & Wireless Plans
- Broadband Internet
- Home & Business Phone
- TV & Streaming Services
- Enterprise Solutions

## Why DataDucks?

- Saturated market competition
- Multi-channel campaigns
- Performance optimization needed
- ROI maximization goals



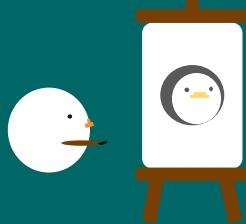
# Our Teams



**Audience**



**Spatial**



**Creative**



**Inventory**

Identify & Engage  
Core Demographics

Optimize  
Geographical  
Spend & Reach

Develop High Impact  
Ad Campaigns

Maximize Value from  
Inventory Sources



# Our Approach

Comprehensive analysis using industry-standard metrics and cross-team collaboration

- **Key Metrics:** CPA, CTR, CPC, CPM, CVR, vCPM, Viewability Rate
- **Data Sources:** Campaign data across all channels, devices, and exchanges
- **Cross-Team Insights:** Integrated findings for holistic recommendations
- **Benchmarking:** Performance relative to client goals and industry standards



# Key Metrics & Formulas

## Cost Per Acquisition (CPA)

CPA = Gross Cost ÷ Total Conversions

## Cost Per Click (CPC)

CPC = Gross Cost ÷ Clicks

## Conversion Rate (CVR)

CVR = (Conversions ÷ Clicks) × 100

## Click-Through Rate (CTR)

CTR = (Clicks ÷ Impressions) × 100

## Cost Per Mille (CPM)

CPM = (Gross Cost ÷ Impressions) × 1000

## Viewable Cost per Mille (vCPM)

vCPM = (Gross Cost ÷ Viewable Impressions) × 1000

## Viewability Rate

Viewability = (Viewable Impressions ÷ Measurable Impressions) × 100



# Our Dataset

- **Source:** StratusLink
- **Columns:** Audience Segment, Creative Size, Creative Messaging, Location, App/URL, Exchange, Device Make, Clicks, Impressions, Viewable Impressions, Measurable Impressions, Total Conversions, Gross Cost
- **Rows:** 727 unique observations



# Data Cleaning and Preparing Process

1	Audience Segment
2	Lotame » Offline CPG Purchasers » Product Segment
3	Lotame » Offline CPG Purchasers » Product Segment » Home Supplies
4	Lotame » Online Shoppers » Online Shoppers
5	Lotame » Personal Finance » Estate Planning

The raw audience data is unorganized and subsequently unusable for visualization.

1	Audience Category	Subcategory
2	Entertainment	Art
3	News & Social Media	Occupation
4	Entertainment	Games & Comics
5	Entertainment	Outdoor Events

The clean audience data is categorized via SQL into a visualizable format.

	Impressions	Clicks	Viewable Impressions	Measurable Impressions	Total Conversions	Gross Cost
count	727.00	727.00	727.00	727.00	727.00	727.00
mean	117,889.02	320.63	57,629.56	102,025.73	11.66	3,815.51
std	298,271.76	697.99	172,437.20	258,767.14	15.56	2,206.55
min	7,229.00	0.00	191.00	2,054.00	1.00	1,247.00
25%	14,024.50	60.00	5,818.00	11,904.00	4.00	1,663.16
50%	29,834.00	101.00	12,405.00	24,752.00	8.00	2,921.11
75%	88,396.00	240.00	37,240.50	75,814.00	14.00	5,987.21
max	4,154,911.00	8,745.00	2,338,732.00	3,445,626.00	154.00	8,187.11

Otherwise the KPI data is numerical besides missing values cleaning was unneeded.



# Data Cleaning and Preparing Process Continued

Location	City	State
Miami-Ft. Lauderdale, Florida	Miami-Ft. Lauderdale	Florida
Tallahassee, Florida-Thomasville, Georgia	Tallahassee	Florida
San Francisco, California	San Francisco	California
Tri-Cities, Tennessee-Virginia	Tri-Cities	Tennessee
Los Angeles, California	Los Angeles	California
South Bend-Elkhart, Indiana	South Bend-Elkhart	Indiana
Chicago, Illinois	Chicago	Illinois

Separated Location into  
City and State

Some records contained  
multiple cities/states,  
we decided to keep only the  
first state



# 2. Audience Analysis

Segment performance & personas





# Meet Our Audience Analysts

**Calvin Manley**

Data Cleaning & Engineer



Baruch Graduate in CIS.

BBA in CIS

Handled reformatting of the data.

**George Peck**

CTR



York College Graduate

BS of Science

**Tracy Wu**

CVR & Audience Insight



Baruch Graduate in MKT

**Rajkamal Kaur**

CPA and Highlights



Baruch Grad

Economics & Finance

Specialized in Analyzing Data



# Audience Insight

We found clear differences across audience categories: some groups were extremely efficient and delivered strong conversion value, while others were significantly more costly or underperformed.

By analyzing CPA, CTR, CVR, impressions, and conversions, we were able to identify our top-performing audiences and pinpoint the weaker segments that may require strategic adjustments.”



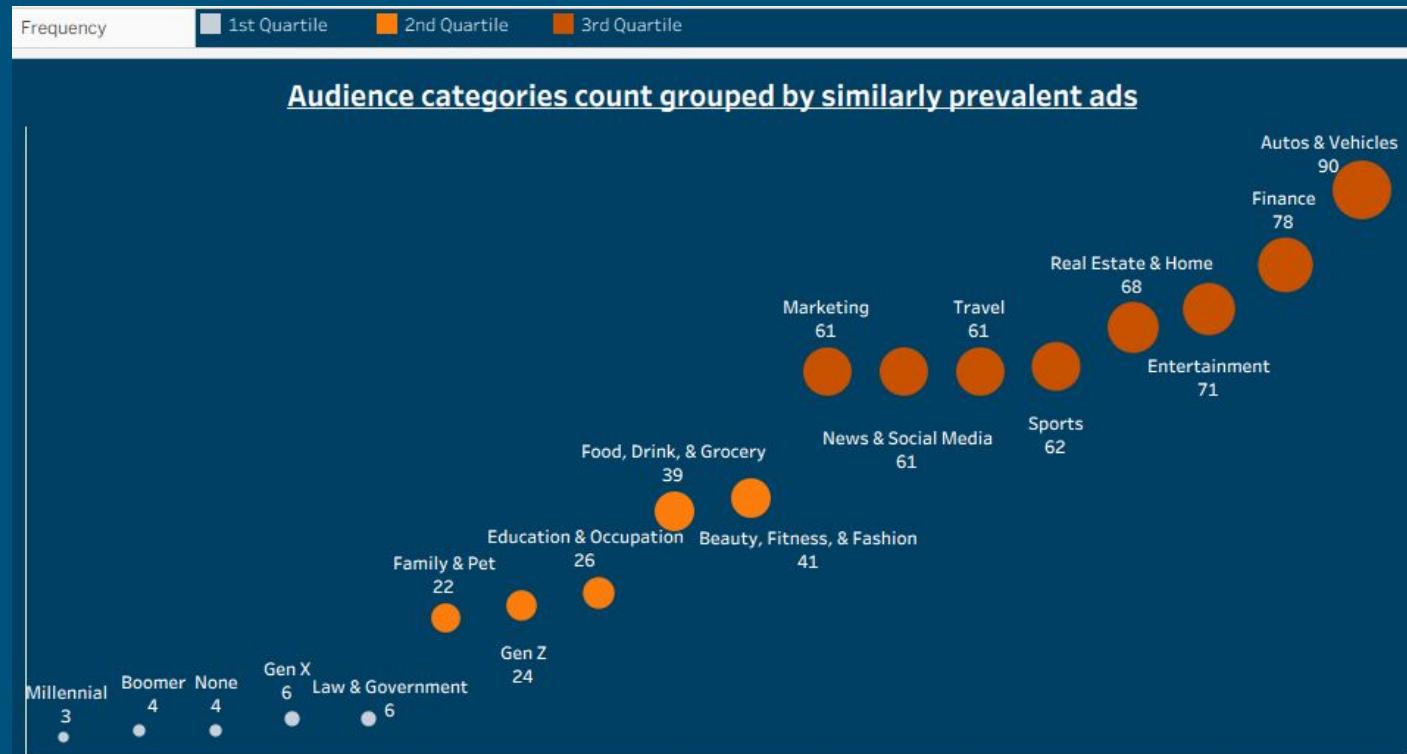


# Audience Categories

Moderate variance  
in frequency of ad  
categories.

Summary	
Count:	18
CNT(Audience Category)	
Average:	40.39
Median:	40.00
Standard deviation:	29.25
First quartile:	10.00
Third quartile:	61.75
Skewness:	0.04

Minor bias  
expected due to  
skew.



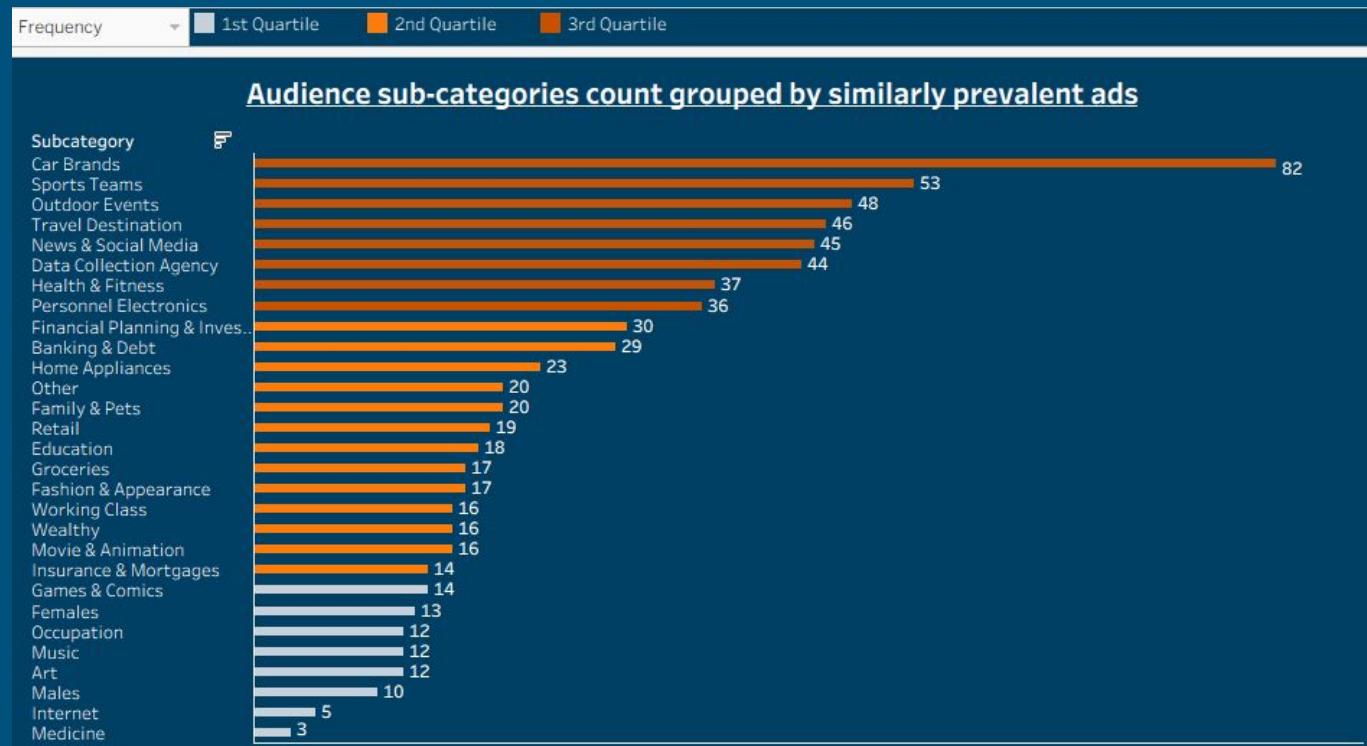


# Sub-Categories

Increased skewness

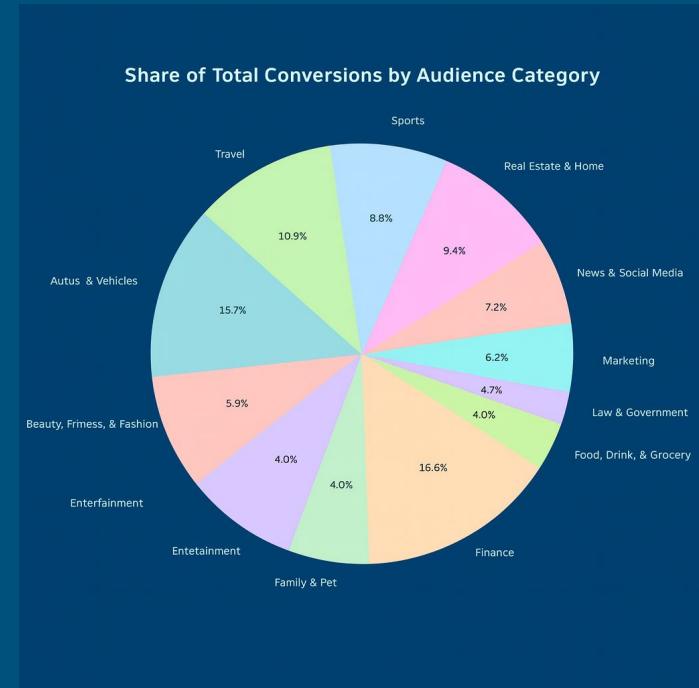
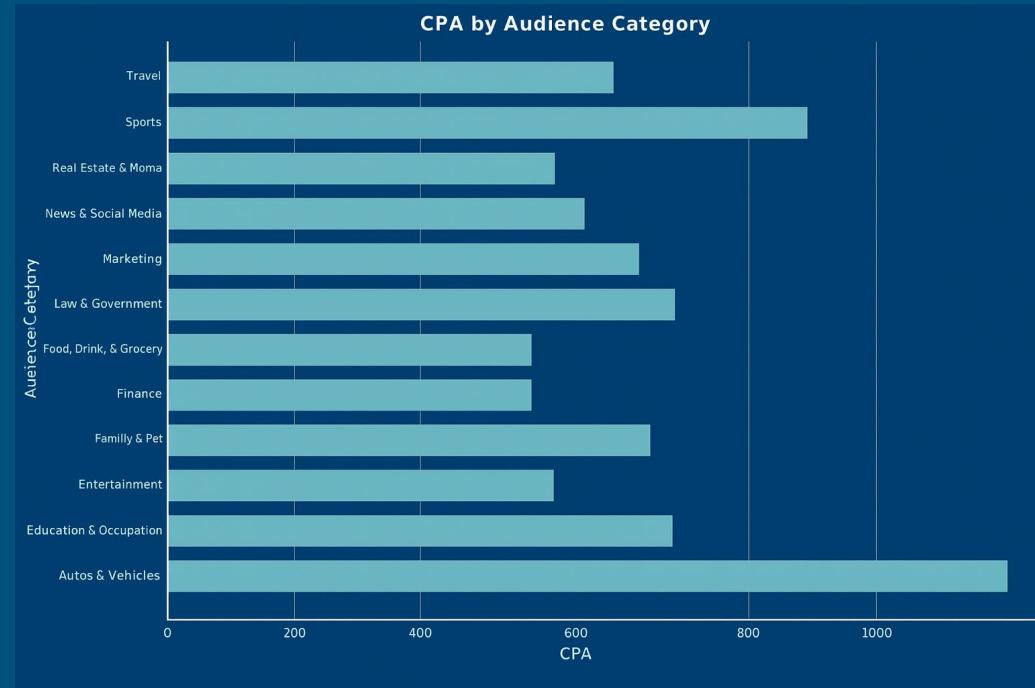
Summary	
Count:	29
CNT(Subcategory)	
Average:	25.07
Median:	18.00
Standard deviation:	17.51
First quartile:	14.00
Third quartile:	36.00
Skewness:	1.41

Moderate bias  
expected due to  
skew.



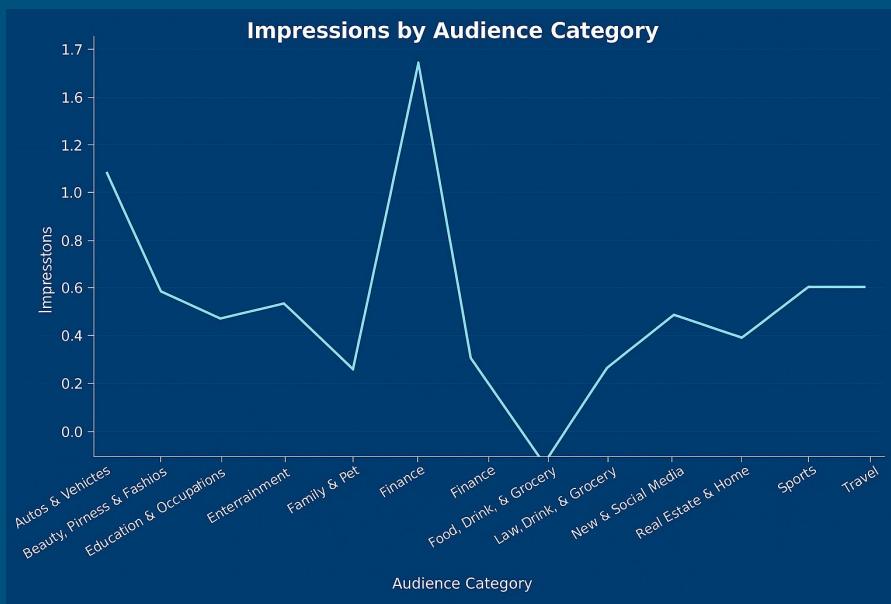


# CPA



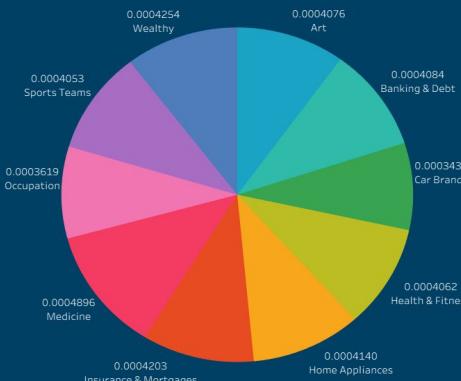


# CPA Continued...





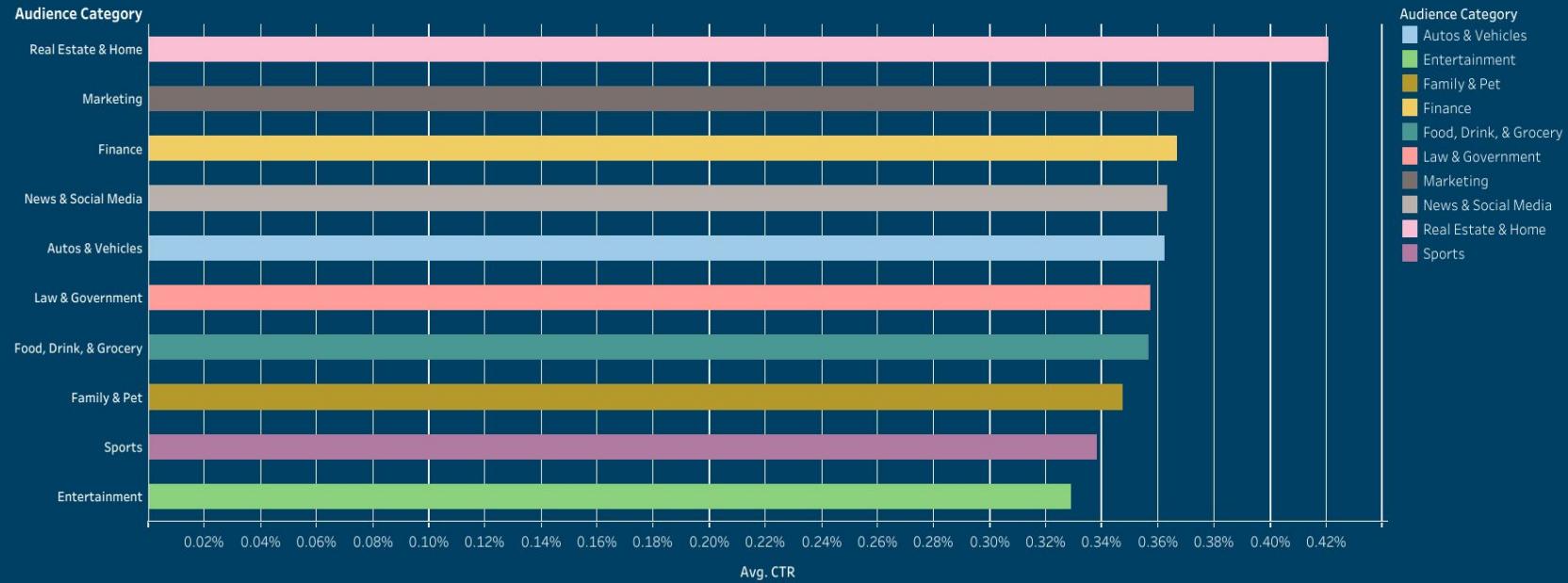
# CVR | Average CVR of categories and subcategories





# CTR

## Top 10 Average CTR

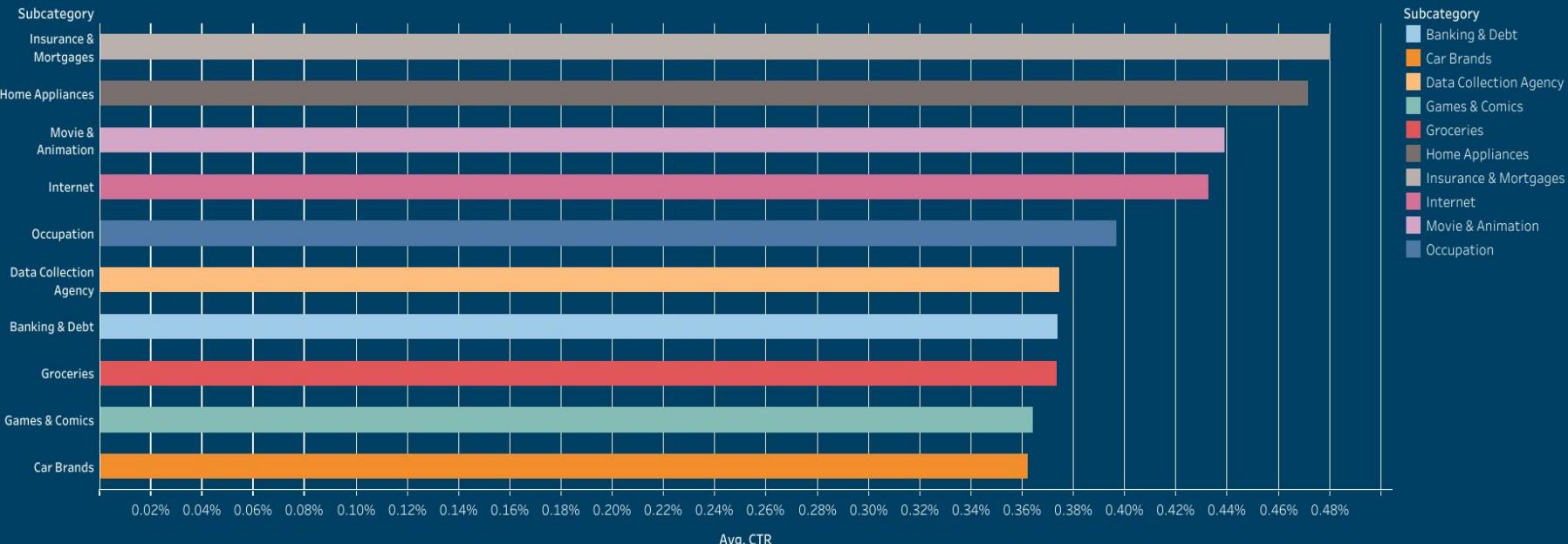


Real Estate & Home is the outlier showing interest in this category



# Detailed Breakdown

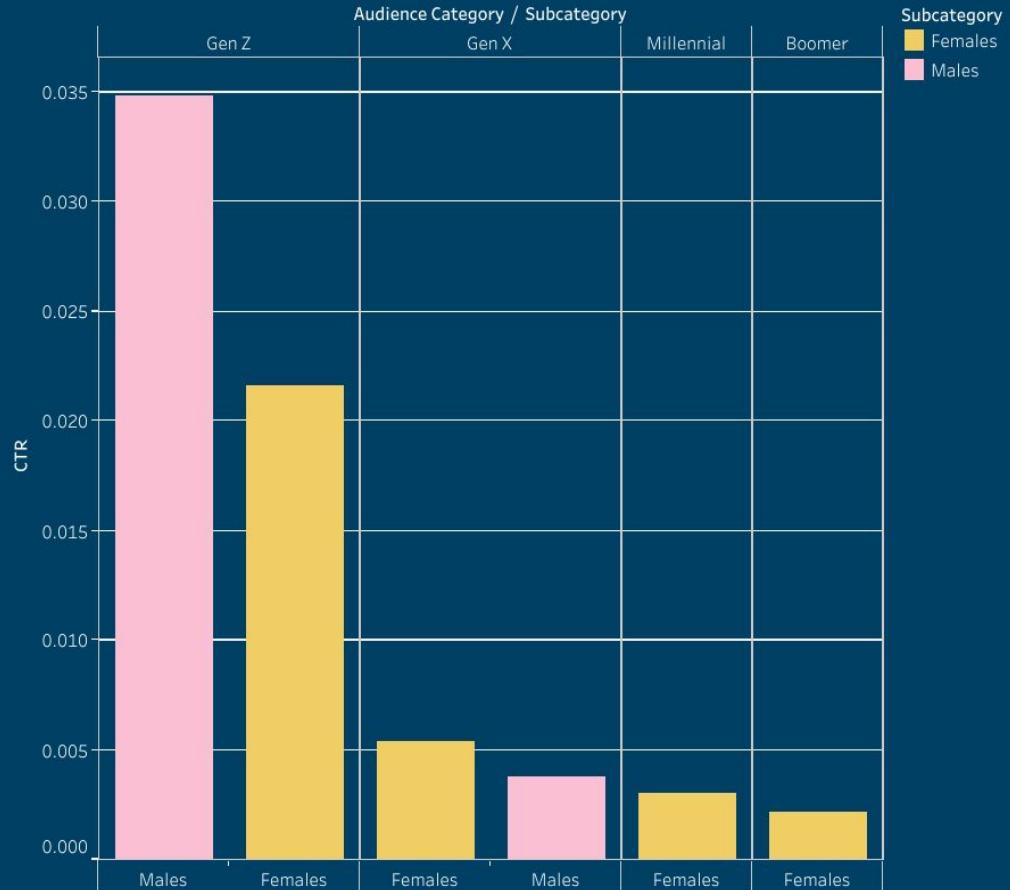
## Top 10 Subcategories



Insurance & Mortgages and Home Appliances



## CTR Demographics



Gen Z has highest CTR by far.

# Cozy Boomer

- Retired, looking to spend money on luxury items like vintage cars and their own physical wellness.
- Spends their time keeping up with sports and browsing news sites. (FOX, CNN)
- High CVR indicates a strong willingness to spend their accumulated wealth.





# Career-Oriented Millennial

- Looking to make smart investments and manage their money wisely.
- Spends their time on business sites (Forbes, Yahoo Finance)
- More interested in experiences like travel and movies than they are with material goods.





# Connected Gen Z'er

- Young, looking to take the next big step in their lives.
- Lives and breathes social media (Instagram, Snapchat, TikTok)
- Mostly looking for housing or ways to furnish their living spaces.
- High CTR indicates a tech savvy demographic with a willingness to engage with ads.





# Recommendations

- Pursue social media ad campaigns to capture the younger demographic with ads on renting or buying housing.
- Legacy media advertising most effective on older demographics.
- Advertise high CVR products to younger demographic as they show most engagement with ads.
- Focus on financial ads as they have high CVR with low CPA.



# 3. Spatial Analysis

Geographic performance insights





# Meet Our Spatial Analysts

**Murshidah**  
Awareness



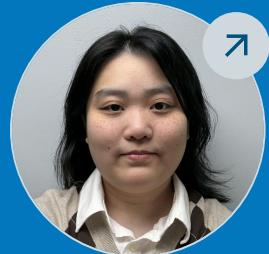
Hunter College Alum and  
currently a COOP Data  
Analytics Fellow

**Jacky**  
Engagement



University at Buffalo Alum  
COOP Data Analytics Fellow

**Allison**  
Conversion



Baruch College Alum  
Contributed to Design  
Handled the ducks





# Spatial Analysts Goals

Main Objective: analyze the campaign's performance based on location, to determine benchmarks, optimize budget allocation, and inform future investment.

Awareness

Engagement

Conversion

Impressions

CPM

CTR

CPC

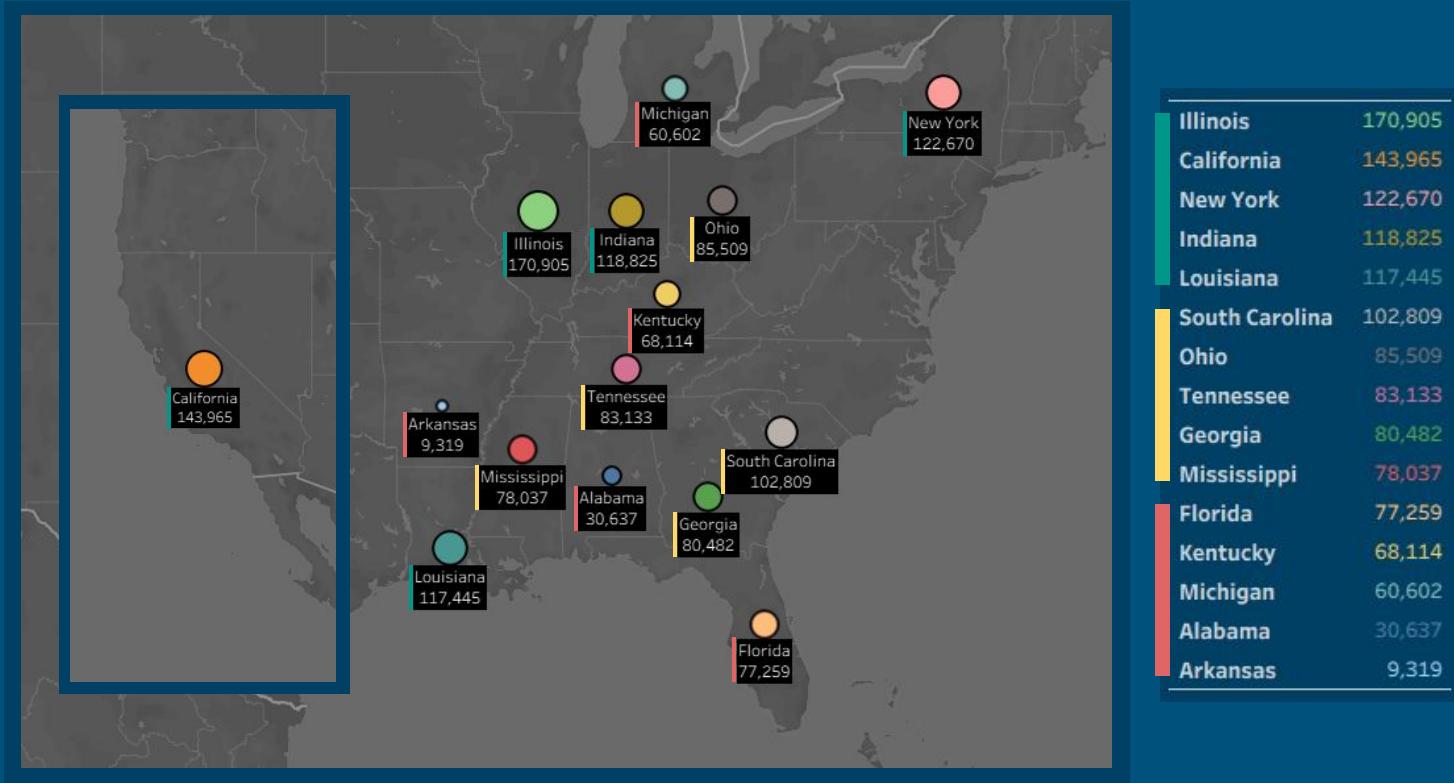
CPA

CVR





# Awareness | Average Impressions per State





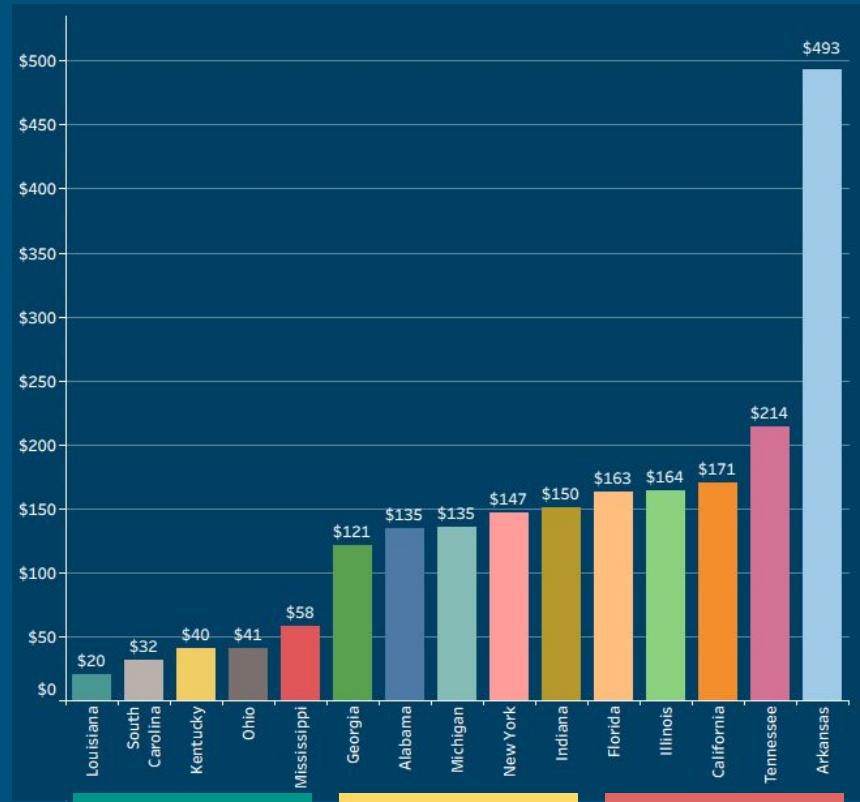
# Awareness | Average CPM per State

*Low CPM = Costs less to get an impression*

Louisiana, South Carolina and Kentucky

*High CPM = Costs more to get an impression.*

Recommendation: allocate Arkansas funds to a better performing state



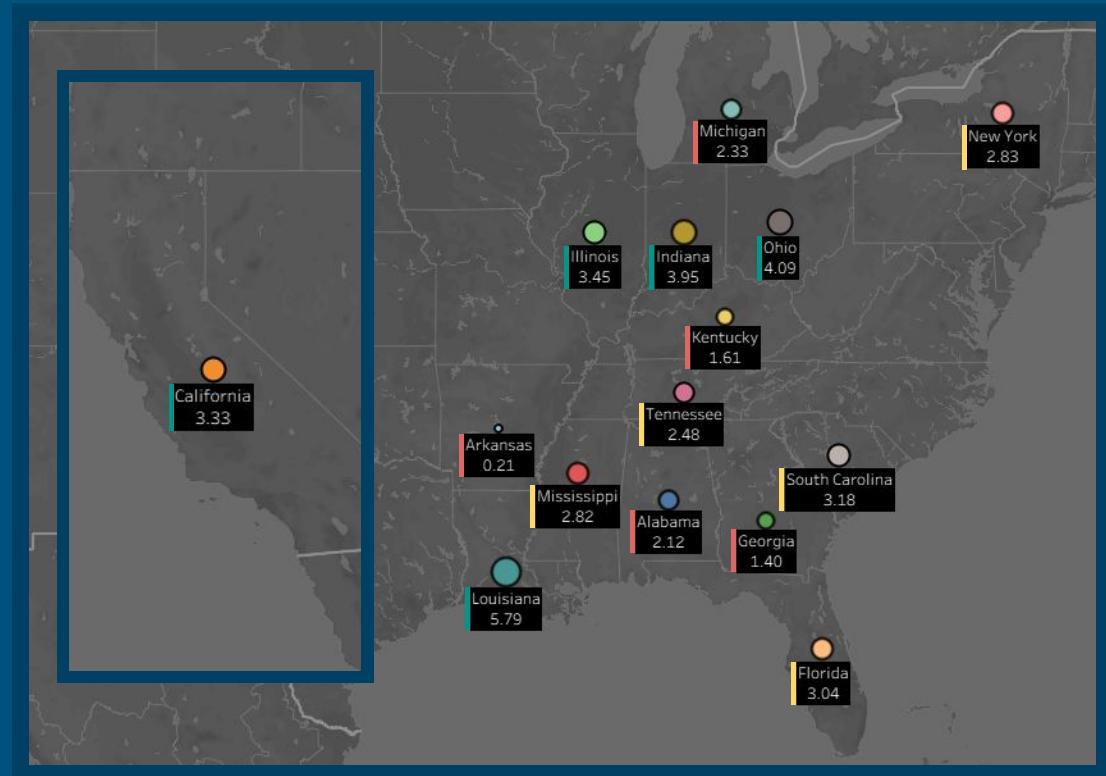
# Engagement | Average CTR / CPC per State

**Most efficient:  
Strong ROI**

**Average efficiency:  
Reasonable  
Trade Off**

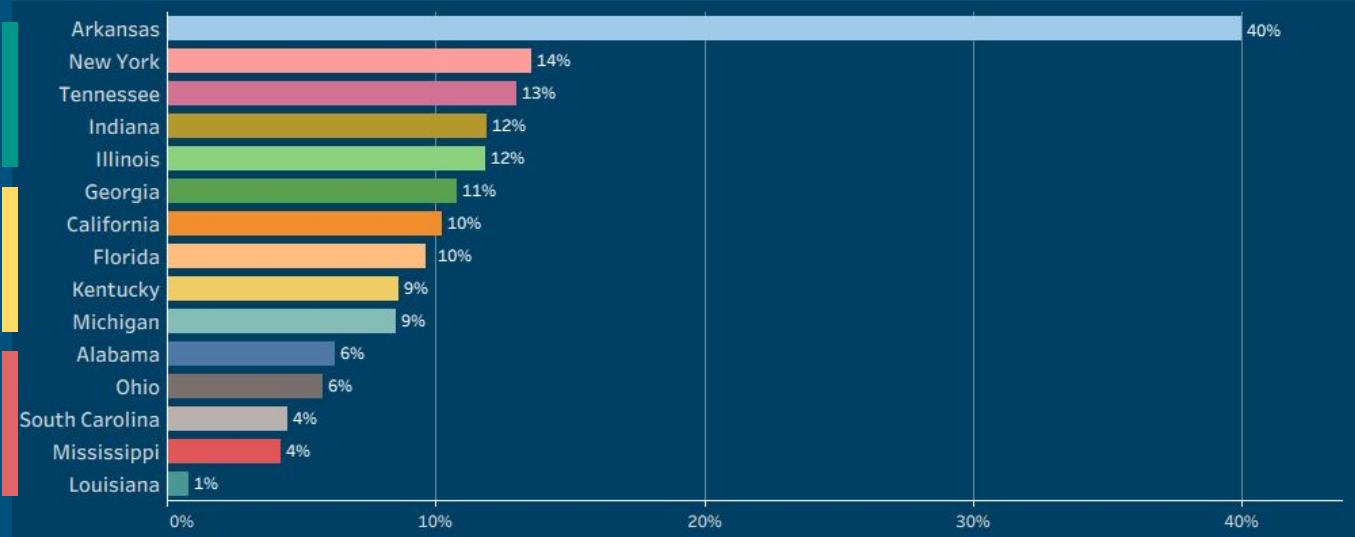
**Inefficient:  
Needs Attention**

Louisiana	5.79
Ohio	4.09
Indiana	3.95
Illinois	3.45
California	3.33
South Carolina	3.18
Florida	3.04
New York	2.83
Mississippi	2.82
Tennessee	2.48
Michigan	2.33
Alabama	2.12
Kentucky	1.61
Georgia	1.40
Arkansas	0.21





# Conversion | Average CVR per State



Top Performing States:

Arkansas, New York,  
Tennessee, Indiana, Illinois

Average states:

Georgia, California, Florida,  
Kentucky, Michigan

Bottom Performing States:

Alabama, Ohio, South  
Carolina, Mississippi,  
Louisiana



# Conversion | Average CPA per State



Top Performing States:  
Kentucky, Ohio, Arkansas,  
Alabama, Mississippi

Average states:  
Michigan, California,  
Illinois, New York, Indiana

Bottom Performing States:  
Florida, Tennessee,  
Louisiana, Georgia, South  
Carolina



# Limitations

Comparing the number of data points (count of city):  
Illinois (163) vs. Arkansas/Kentucky (1)  
Not a fair comparison, is it?

State	Avg. Impressions	Avg. CPM	Avg. CTR/CPC	Avg. CVR	Avg. CPA	Count of City
Illinois	170,905	\$164.21	3.45	12%	\$649.11	163
Florida	77,259	\$162.58	3.04	10%	\$804.05	160
California	143,965	\$170.52	3.33	10%	\$640.91	140
New York	122,670	\$147.16	2.83	14%	\$651.99	101
Tennessee	83,133	\$213.82	2.48	13%	\$874.80	75
Michigan	60,602	\$135.04	2.33	9%	\$582.78	40
Indiana	118,825	\$150.37	3.95	12%	\$654.60	16
Georgia	80,482	\$121.22	1.40	11%	\$1,280.46	9
Alabama	30,637	\$135.01	2.12	6%	\$501.18	6
South Carolina	102,809	\$31.64	3.18	4%	\$1,566.36	5
Mississippi	78,037	\$57.99	2.82	4%	\$534.18	5
Ohio	85,509	\$41.16	4.09	6%	\$285.99	3
Louisiana	117,445	\$20.26	5.79	1%	\$1,069.02	2
Kentucky	68,114	\$40.43	1.61	9%	\$183.58	1
Arkansas	9,319	\$493.04	0.21	40%	\$382.88	1





# Relationships between KPIs

## Awareness

State	Avg. Impressions
Illinois	170,905
California	143,965
New York	122,670
Indiana	118,825
Louisiana	117,445
South Carolina	102,809
Ohio	85,509
Tennessee	83,133
Georgia	80,482
Mississippi	78,037
Florida	77,259
Kentucky	68,114
Michigan	60,602
Alabama	30,637
Arkansas	9,319

## Engagement

State	Avg. CPM
Louisiana	\$20.26
South Carolina	\$31.64
Kentucky	\$40.43
Ohio	\$41.16
Mississippi	\$57.99
Georgia	\$121.22
Alabama	\$135.01
Michigan	\$135.04
New York	\$147.16
Indiana	\$150.37
Florida	\$162.58
Illinois	\$164.21
California	\$170.52
Tennessee	\$213.82
Arkansas	\$493.04

## Conversion

State	Avg. CVR
Arkansas	40%
New York	14%
Tennessee	13%
Indiana	12%
Illinois	12%
California	3.33
South Carolina	3.18
Florida	3.04
New York	2.83
Mississippi	2.82
Tennessee	2.48
Michigan	2.33
Alabama	2.12
Kentucky	1.61
Georgia	1.40
Arkansas	0.21



# Spatial Recommendations



Optimize High Volume,  
High Return States

Illinois, California, New  
York generate strong  
impression volume with  
solid CTR and competitive  
CPAs.



Reduce Spending in Low  
Efficiency Markets

Florida and Tennessee  
show above avg CPAs



Invest in High CVR

Arkansas has an  
extremely high CVR (40%)



# 4. Creative Analysis

Ad format & messaging analysis





# Meet Our Creative Analysts

**Alanna Cheung**

Visualizations



CUNY Hunter College - BS in Accounting

COOP Data Analytics Fellow

**Fyja Rashid**



Baruch College - CIS

Data Cleaning and One pager

**Imani Fouchong-Brown**

COOP Data Analyst Fellow



SUNY Purchase Graduate in Comp-Sci

Data Cleaning

**Jiahui Liang**

COOP Data Analyst Fellow



Baruch Graduated in Accounting  
Data Cleaning  
Visualization

# Creative Performance Insights to Guide Budget Allocation



## Top & Bottom Performing Creative Sizes Identified

- Evaluated across **CPA, CVR, CPC, CPM**.
- Assessed using branding metrics: **CTR, viewability, viewable impressions**.

## Performance Comparison by Key Dimensions

- **Device:** Mobile vs. Desktop Engagement + Efficiency.
- **Location:** Geo-Level performance differences.
- **Messaging:** High-Impact Creative Themes vs. Low-Performance Messaging.



# Creative: Key Terms

- Creative Size - dimensions/size of the advertisements
- Creative Messaging - communication of a brand's message through visuals, language, etc.
- Device Make - the manufacturer of a device (i.e. Apple, Windows, etc.)



# Which one you will choose?



300x250



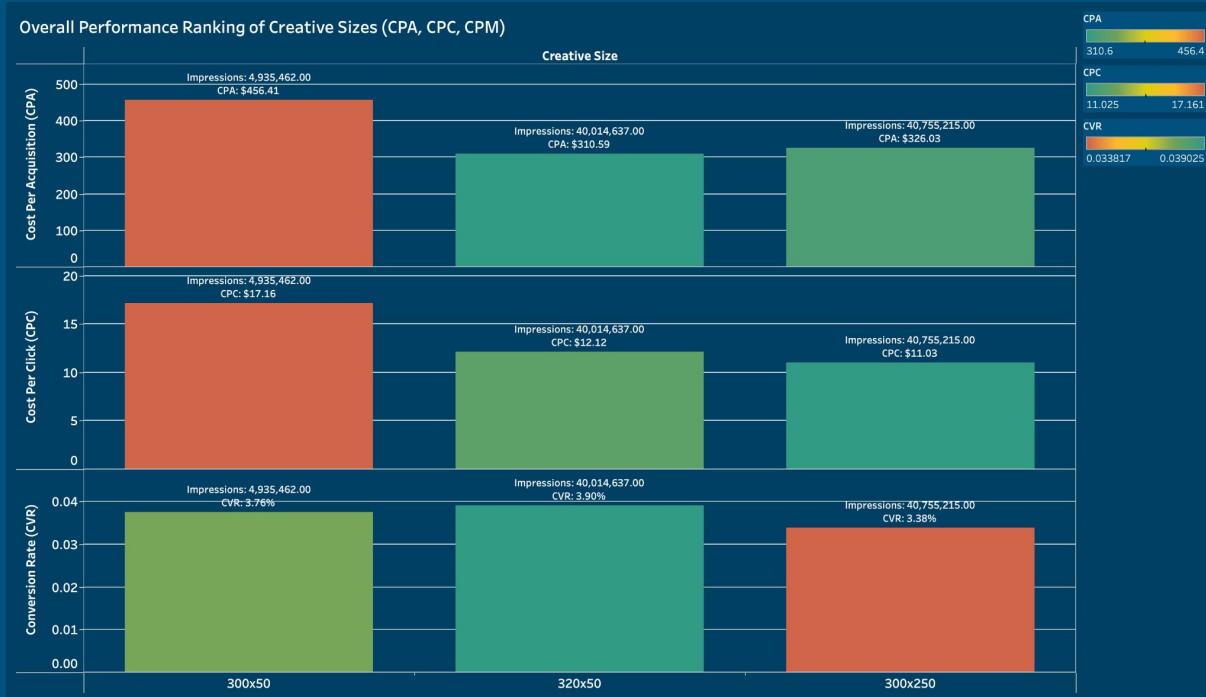
320 x 50



300x50



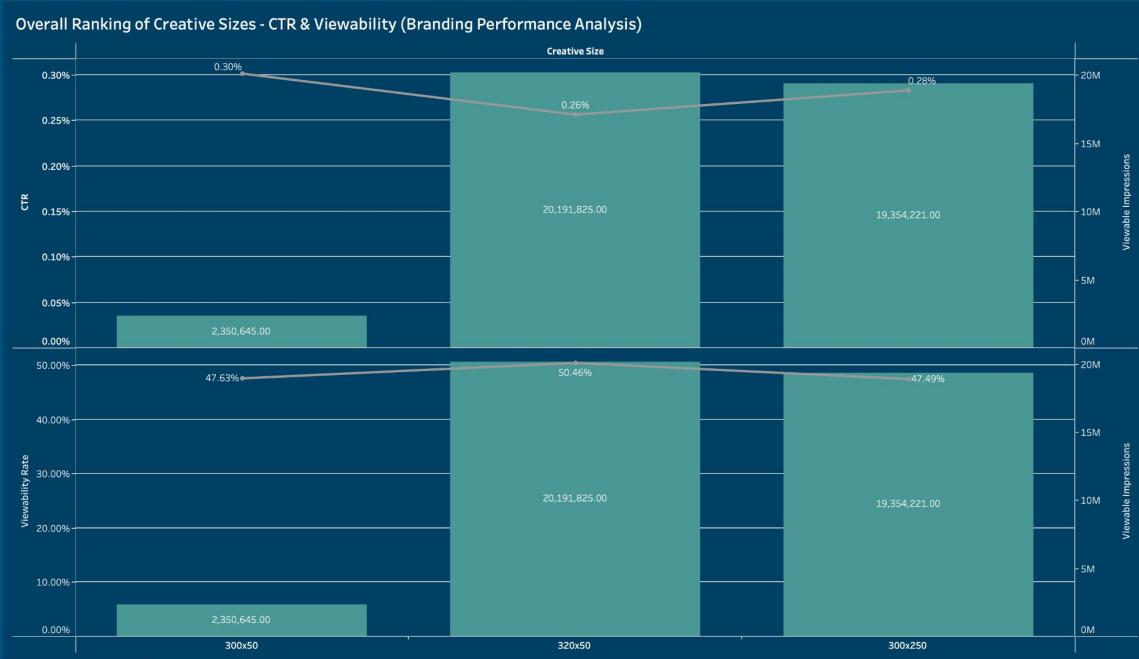
# Identifying Highest & Lowest Performing Creative Formats



- 320x50 is the most efficient creative size.
- 300x250 performs moderately well.
- 300x50 is the lowest-performing size.



# Creative Size Performance: CTR, Viewability, & Viewable Impressions

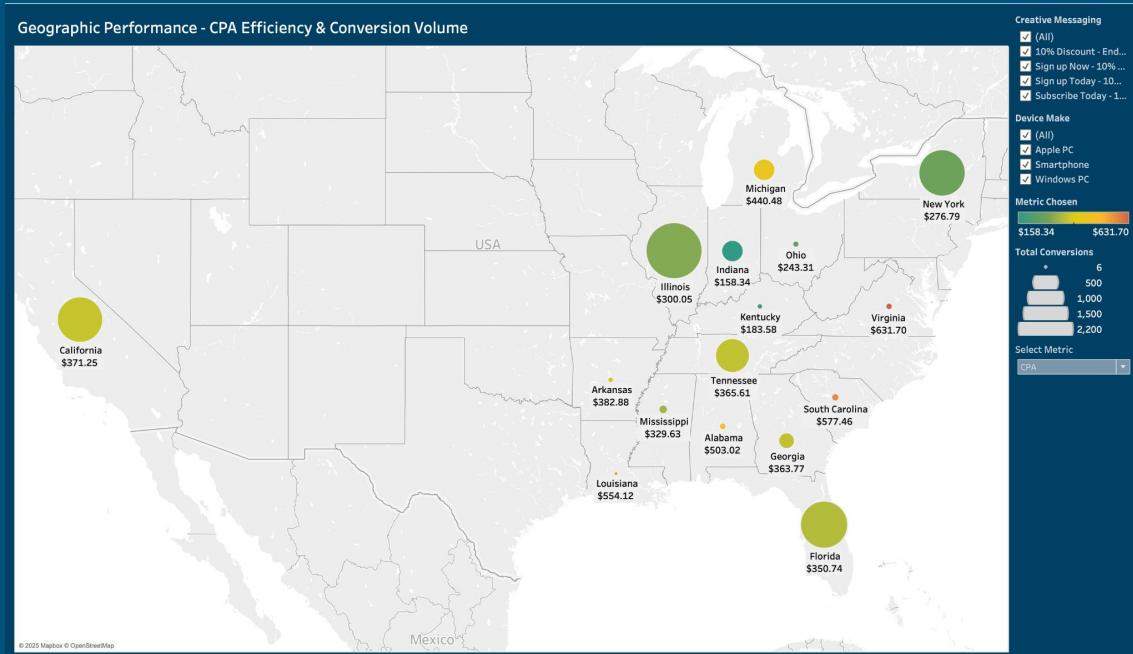


## Performance Summary

- 300x250 & 320x50 deliver the highest branding efficiency (strong viewability & viewable impressions).
- 300x50 underperforms across CTR and total viewability.
- CTR differences remain small across top sizes (0.26%-0.30%).
- Viewability is highest for 320x50 ( $\approx 50.46\%$ ).



# Geographic Performance Map



- Map uses color to show CPA performance (green = efficient, red = inefficient).
- Bubble size = total conversions (market volume).
- Identifies high-value, low-CPA markets for scaling spend.
- Highlights high-CPA, high-volume markets that require optimization.
- Device and Messaging filters reveal why performance differs by region.



# Different pc platforms in same size (300x250)

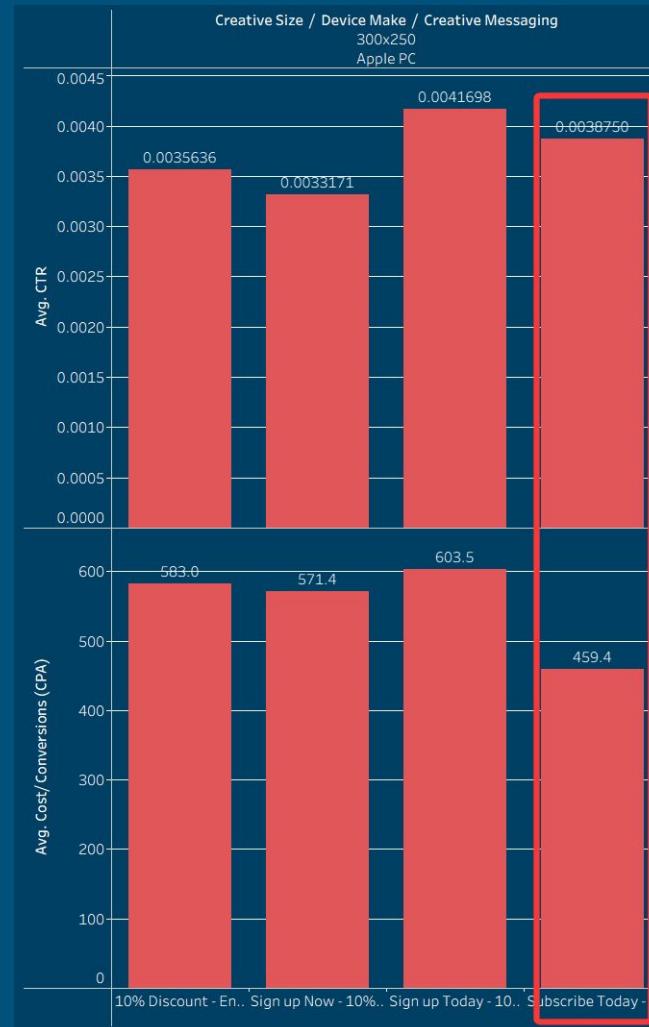


- High CTR  
goal: 0.015%
- Low CPA  
goal: 350\$



# Apple Recommendations

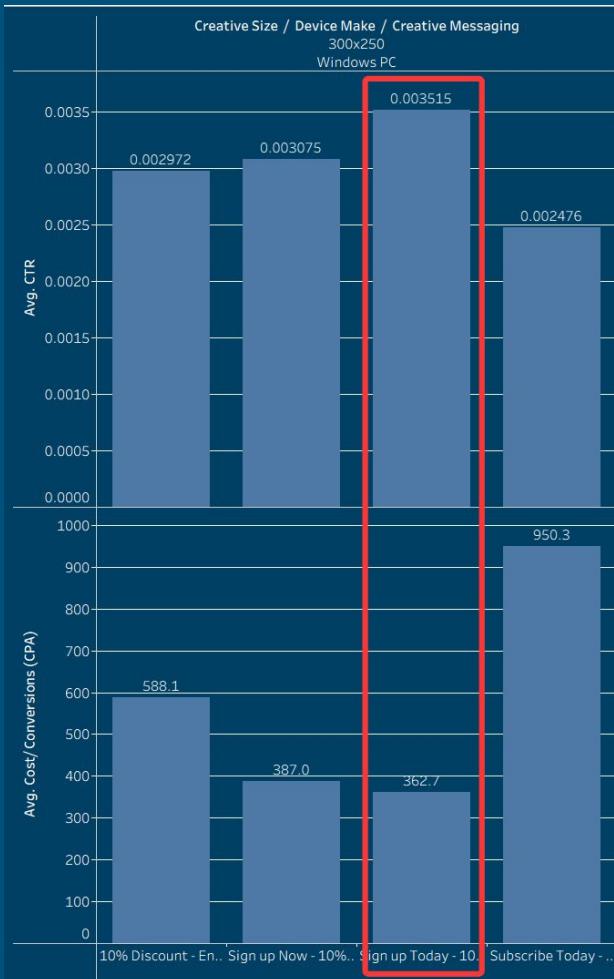
- "subscribe today-10% discount"
- It only uses about 75% cost and achieved similar CTR compare to others
- Should put a little more budget and see how the ads effectiveness changed





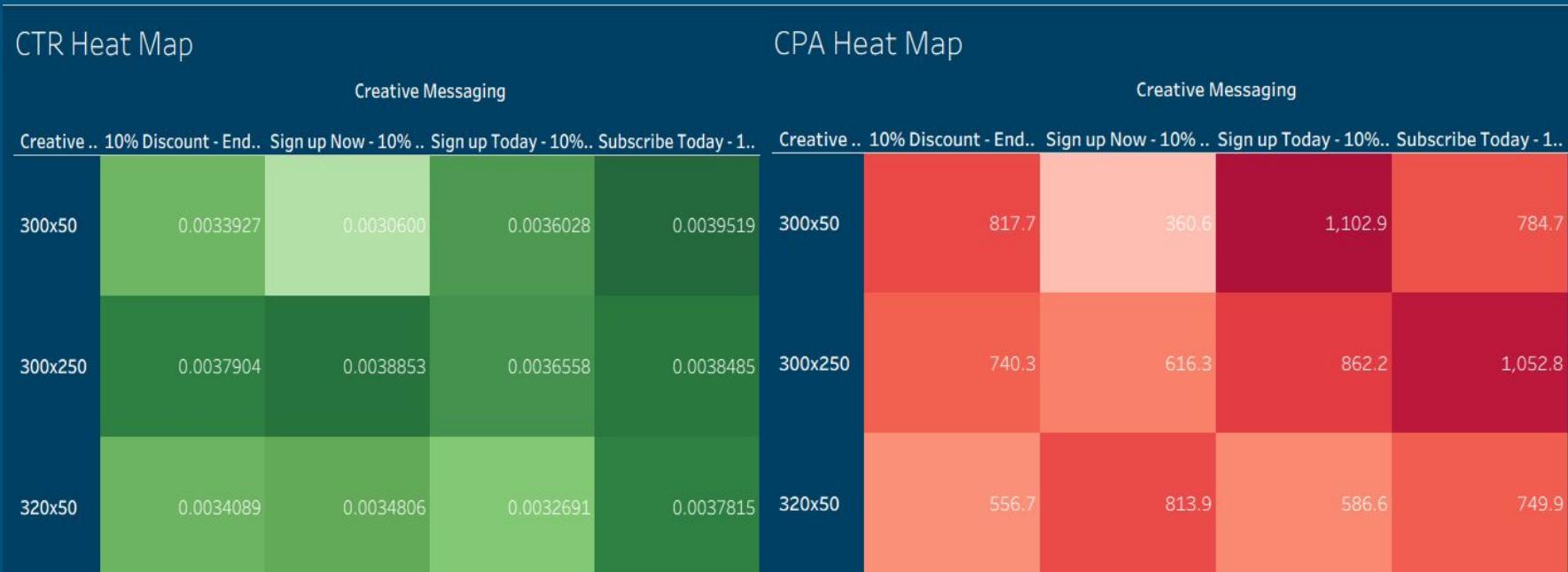
# Windows Recommendations

- "signed up today- 10% off"
- Lowest cost method and achieve highest CTR compare to others
- Should put most of the budget to optimize the ads effectiveness





# Smartphone in different sizes

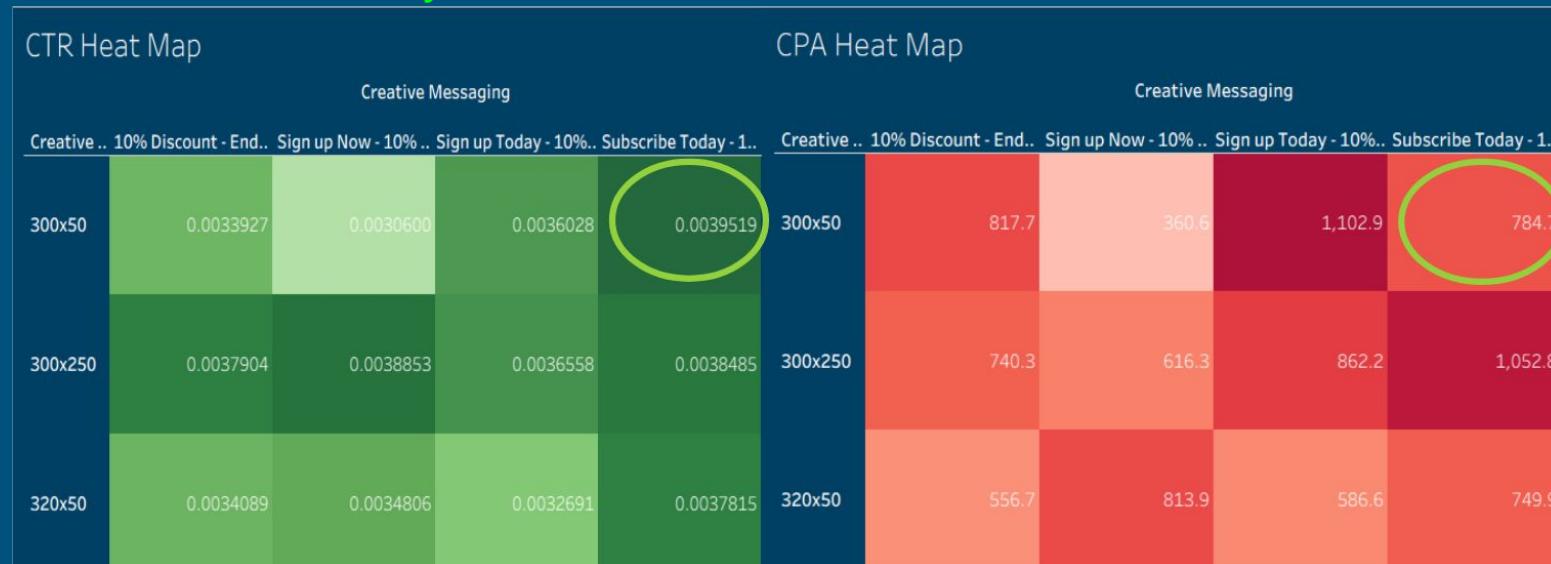




# For smartphone, we recommend that...

The most effective and low cost method is

- “Subscribe Today 10% off”, 300x50

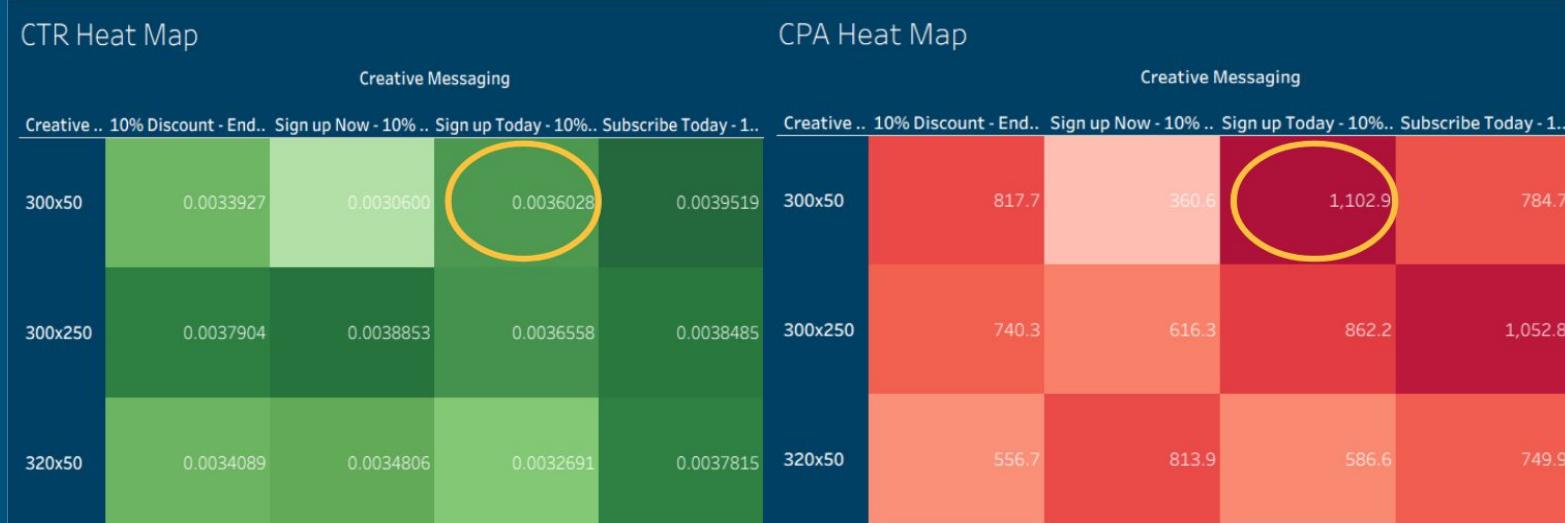




# For smartphone, we recommend that...

The most high cost and lowest effective method is

- “Sign up today 10% off”, 300x50





# Recommendations

Creative Strategy for stronger ROI

- 👉 **Increase What works** (Boost Investment in high efficiency, high engagement)
- ✖️ **Cut Budget Waste** (Shift spend away from low performing sizes or placement)
- ☁️ **Personalize for performance** (Tailor creative delivery by device, market, messaging)
- ⭐️ **Key Insight** (Subscribe today 10% OFF+ 320\*50 delivered the most engagement)
- ⚡️ **Expected Impact** (Higher engagement, more efficient spend and stronger conversion rates across the campaign)



# 5. Inventory Analysis

Media spending optimization





# Meet Our Inventory Analysts

**Jalynn McMillan**

Impressions



Psychology graduate from Brooklyn College with a background in research. Currently a Data Analytics Fellow with COOP Careers.

**Dawa Sherpa**

Branding Metrics



CS grad from CCNY 📱

Passionate about translating data insights into actionable recommendations to drive customer acquisition 💰📈

**Sandiana Mervil**

Performance Metrics



Sandiana is an alumna of University of South Florida. She helped to clean data and covered performance metrics for her group.

**Sandra Chen**

Recommendations



Baruch College graduate in Operations Management & Analytics, currently a Data Analytics Fellow at COOP Careers.



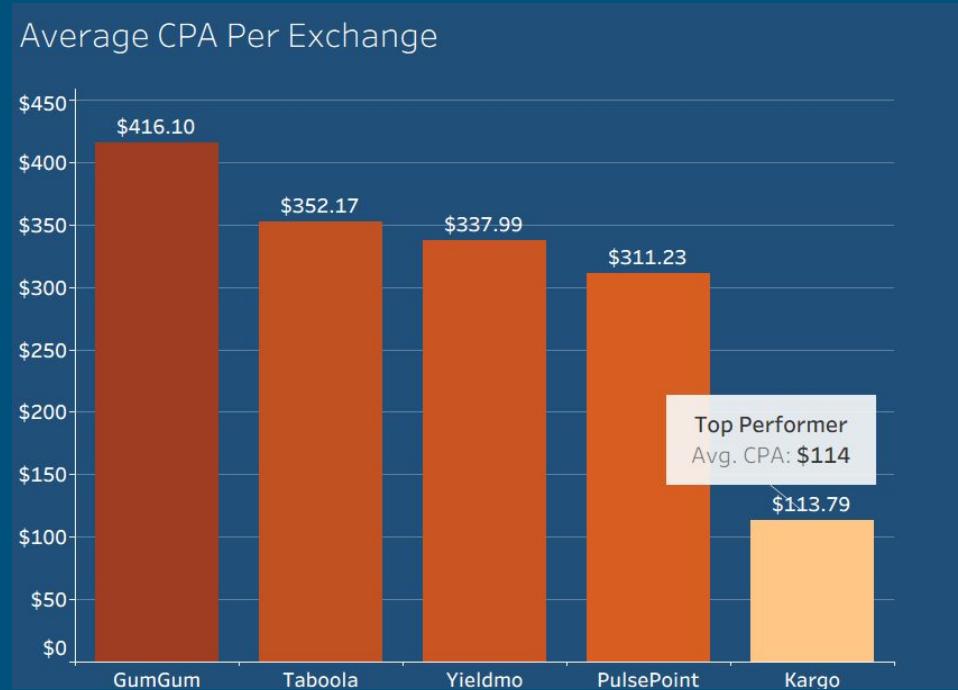
# Key Terms

- **Exchange** – digital marketplace where advertisers buy ad impressions and publishers sell ad space in real time
- **Publisher** – any website, app, or digital platform that provides ad space for advertisers to place their ads
- **Key Performance Indicator** – It is a specific measurable metric used to track how well a campaign, business, or strategy is performing



# Comparing Performance Metrics - Cost CPA

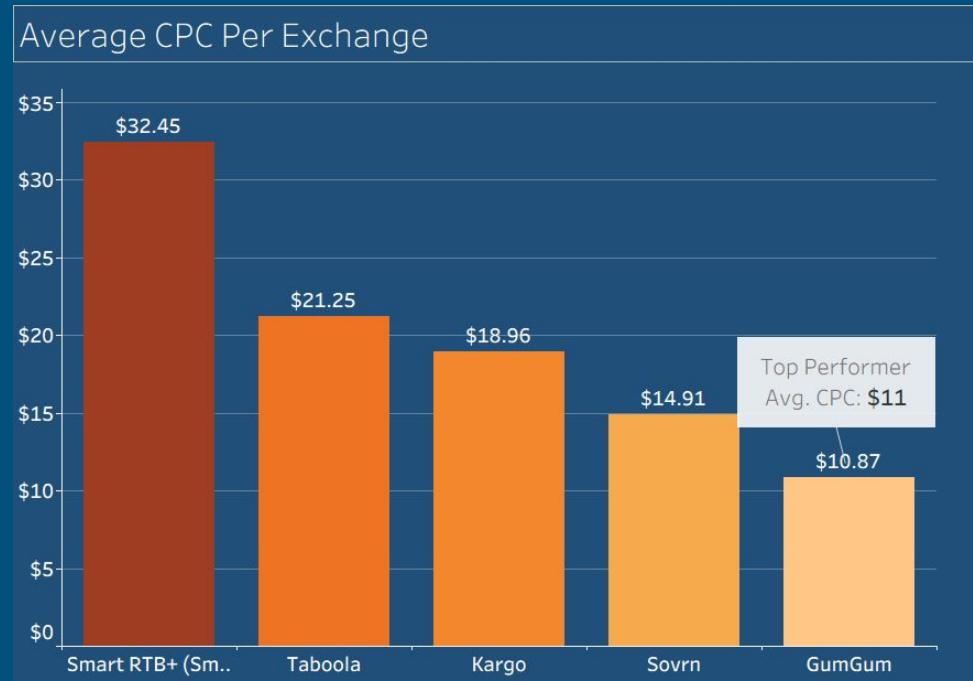
- Top 5 Lowest CPA  
(Cost per Acquisition)
- Kargo – CPA = 113.79  
(Best / Most Efficient)





# Comparing Performance Metrics - Cost (CPC)

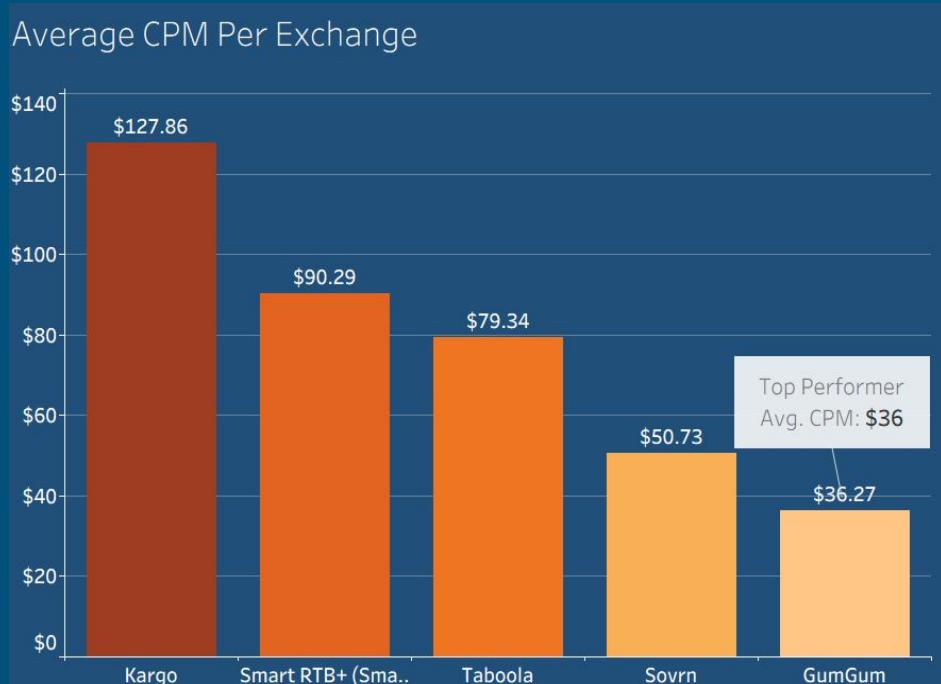
- Top 5 Lowest CPC  
(Cost per Click)
- GumGum – CPC = \$10.87  
(Most Cost-Efficient CPC)





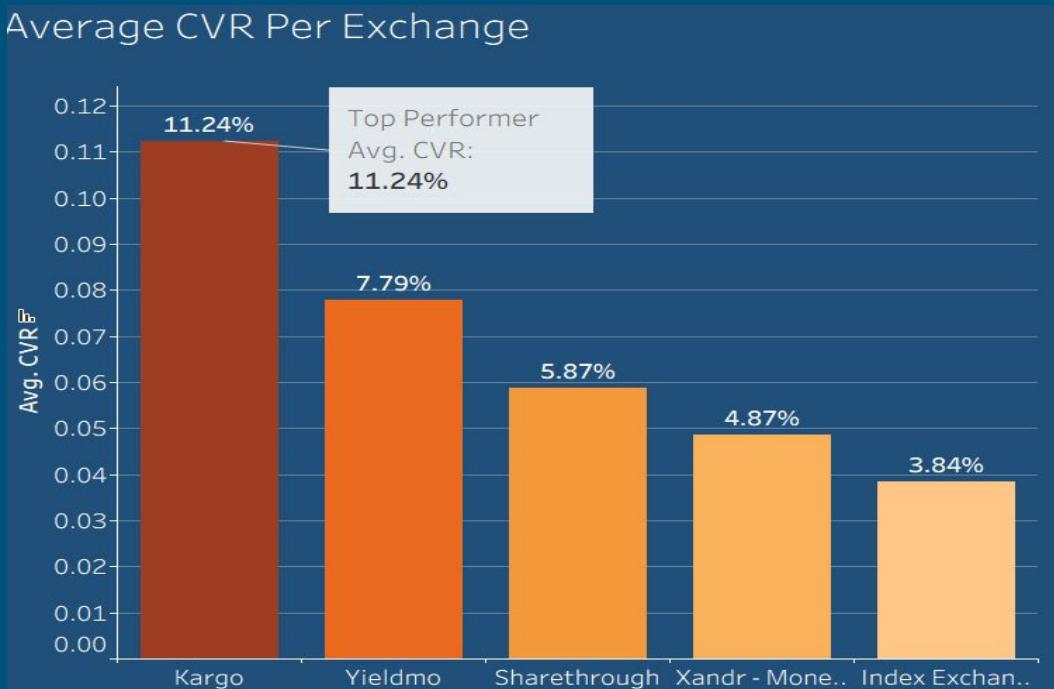
# Comparing Performance Metrics - Cost (CPM)

- Top 5 Lowest CPM (Cost per 1,000 Impressions)
- GumGum is the Best (Lowest Cost per 1,000 Impressions)

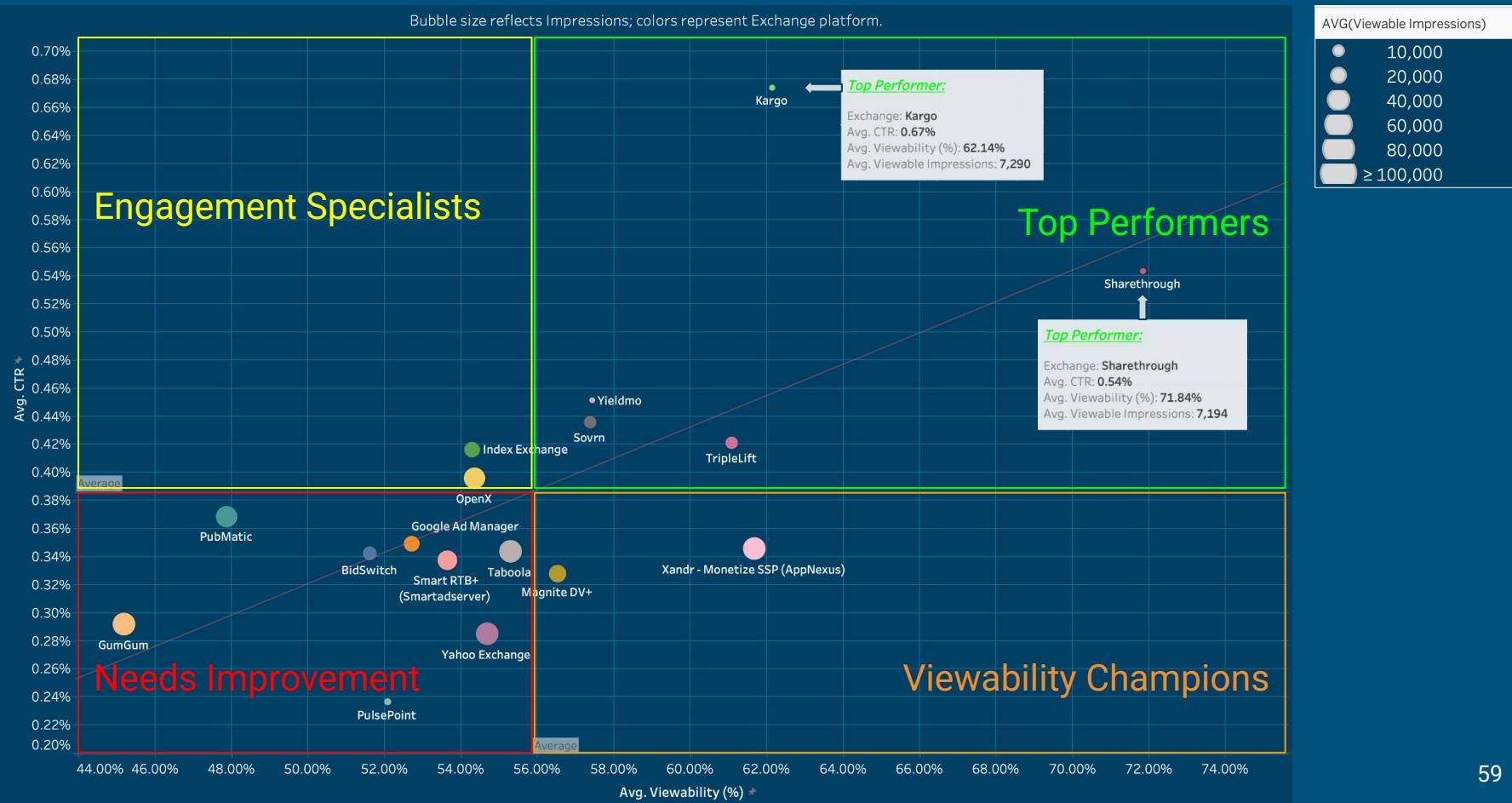


# Comparing Performance Metrics - CVR

- Top 5 Highest CVR
- (Conversion Rate)
- Kargo has the highest CVR



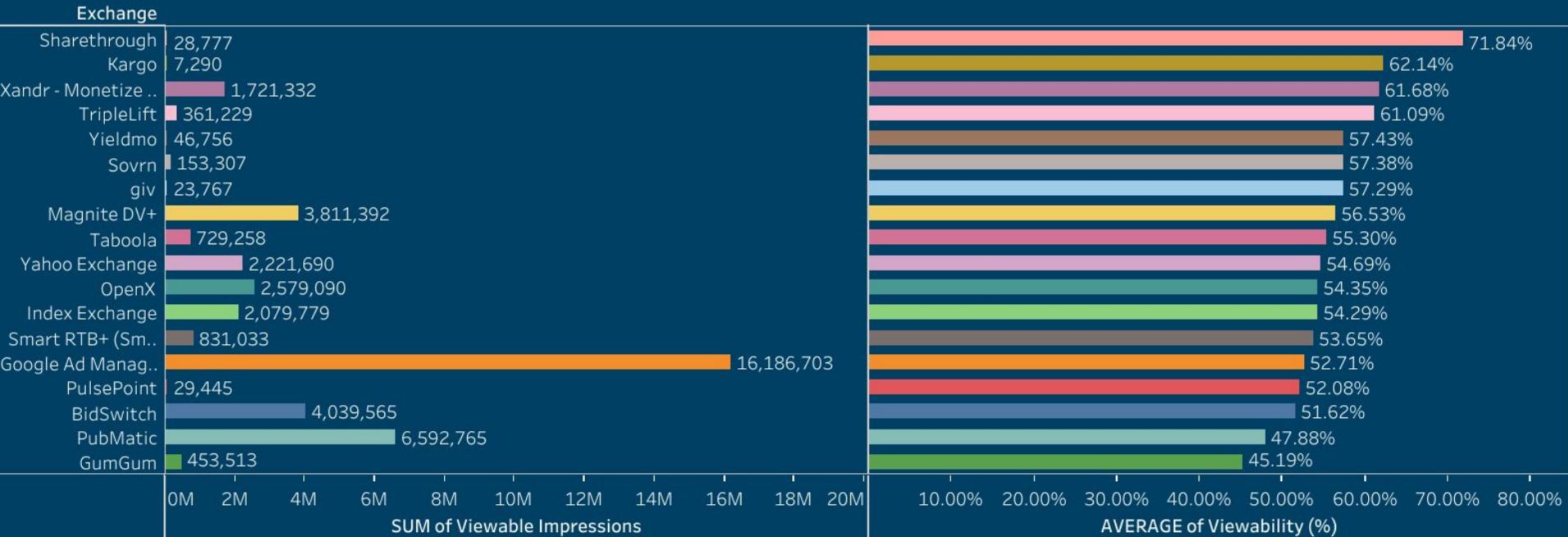
# Comparing Branding Metrics - CTR, Viewability, Viewable Impressions





# Viewable Impressions

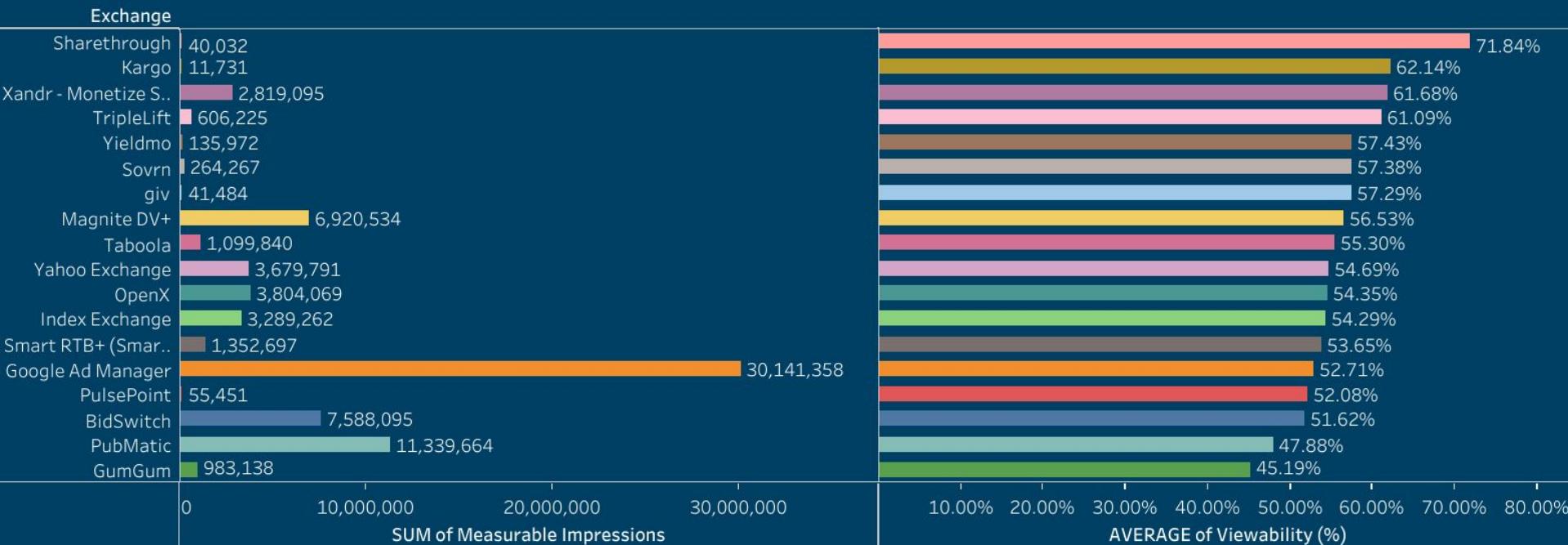
## Viewable Impressions





# Measurable Impressions

## Measurable Impressions





# Top 5 Publishers

Rank	Publisher	Avg. Viewability (%)	Avg. vCPM (\$)	CPA (\$)	CTR (%)
1	historycollection.com	81.99%	\$50.92	\$201.55	0.29%
2	fortune.com	72.94%	\$40.14	\$375.50	0.29%
3	outlook.live.com	91.10%	\$72.08	\$565.96	0.33%
4	a-z-animals.com	57.43%	\$37.20	\$502.15	0.37%
5	taboolaanews.com	41.78%	\$19.33	\$90.74	0.26%

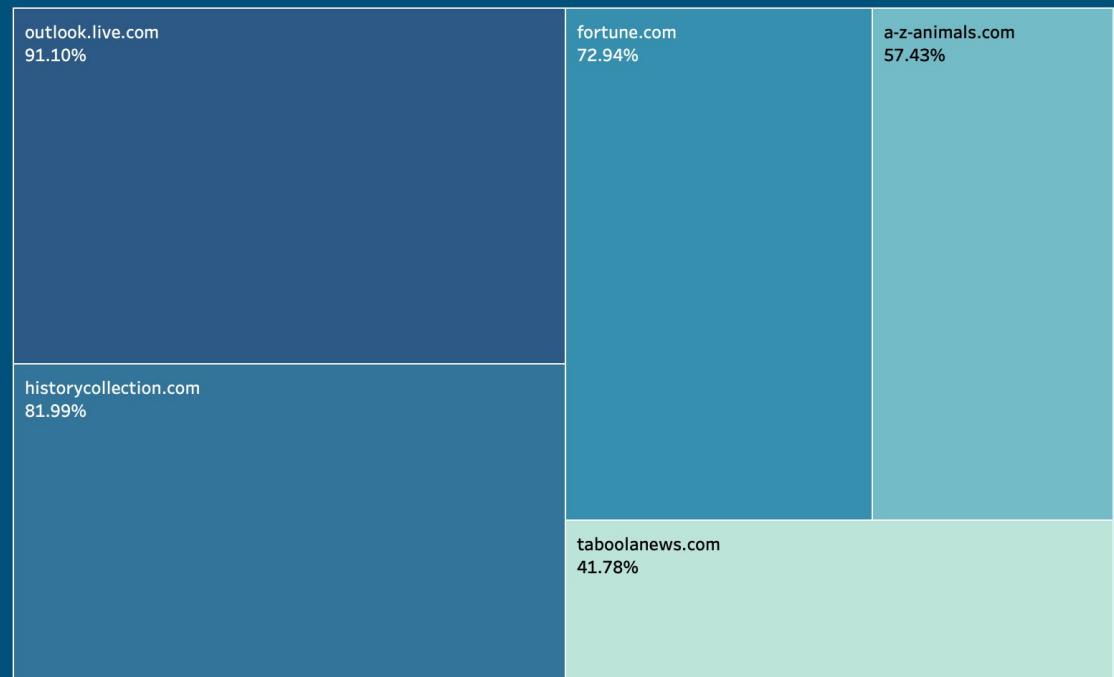


# Top 5 Publishers – Viewability

**Viewability Goal:  $\geq 60\%$**

1. outlook.live.com
2. historycollection.com
3. fortune.com

Top 5 Publishers - Viewability (%)

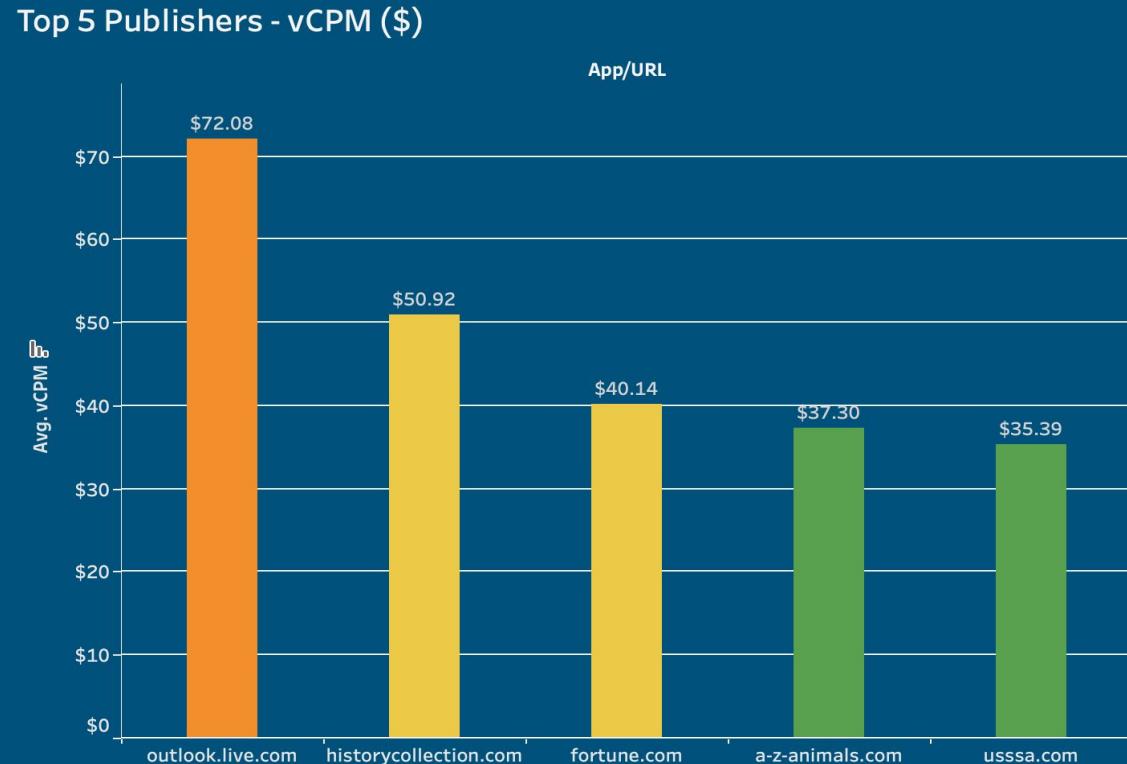




# Top 5 Publishers – vCPM

vCPM Goal:  $\leq \$80$

- **Highest vCPM:**  
outlook.live.com
- **Lowest vCPMs:**  
usssa.com,  
a-z-animals.com,  
fortune.com





# Direct Buy Rate Recommendations

PUBLISHER	ROLE	SUGGESTED VCPM
<i>historycollection.com</i>	Premium anchor (80%+ viewability)	\$50–\$55
<i>fortune.com</i>	Premium value partner	\$40–\$45
<i>outlook.live.com</i>	Super-premium buy	\$65–\$75
<i>a-z-animals.com</i>	Cost-efficient support partner	\$30–\$35
<i>taboolaanews.com</i>	Performance / Retargeting	\$20–\$25



# 6. Recommendations

Strategic roadmap & next steps





# Final Recommendations

## Audience



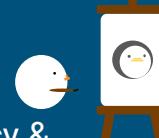
- Expand Social Media campaigns
- Promote high CVR products
- Focus spend on high - performing markets

## Spatial



- Illinois, California, and New York are valuable markets.
- Arkansas shows potential.

## Creative



- Allocate toward high-efficiency & high-visibility creative combos; pause persistent low performers.
- Optimize by device, messaging, and location to maximize ROI.

## Inventory



- **Premium:** historycollection, fortune
- **Super-premium:** outlook
- **Efficiency:** a-z-animals, taboolanews



Thank you!