



Presentation Agenda

- 1. Project Overview
- 2. Data Analysis
- 3. Key Findings
- 4. Action Plan
- 5. Wrap-up/Q&A





Al Studio Project Overview





This project aims to leverage Google Trends data through EDA, sentiment analysis, and time-series forecasting to provide actionable insights and a strategic plan for optimizing American Signature Inc.'s marketing budget.

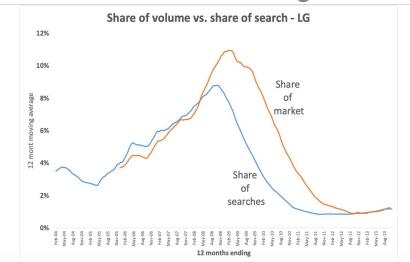




Significance of Search Data

- Focus on monthly Google keyword search data
- Search keywords reflect consumer interests
- Share of search is a strong indicator of market share

share of searches is a leading indicator

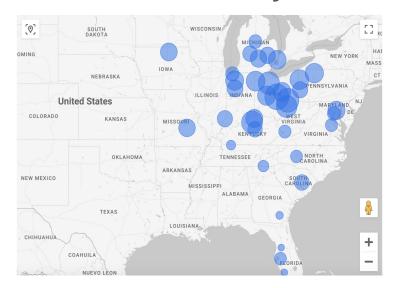




Understanding DMAs

- DMAs are Designated Market Areas
- It can include many cities (or parts of cities)
- Usually people in the same DMA share the same local TV and radio stations
 - Advertising costs vary significantly between them

ASI Share of Search by DMA





Business Impact

Informed Marketing Strategies:

- Uncover most effective marketing techniques
- Guide Colle McVoy to lead impactful campaigns

Predict Market Share:

- Share of search serves as a strong indicator of market share
- Forecast a company's potential market share in the upcoming months





Social Sentiment of ASI

- <u>Instagram & Facebook</u>: active account but little interaction
 - 170K followers on Facebook and 100K followers on Instagram
 - o Posts on a daily basis
- Reddit: mixed positive and negative sentiment
 - Some recommends ASI to others
 - Some consumers have complaints about quality of products and furniture delivery
- No big presence on X and Tiktok











Data Understanding & Data Preparation



Resources We Leveraged

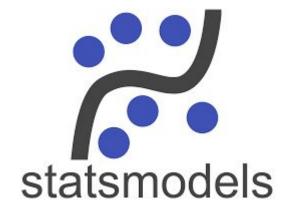














Data Preparation

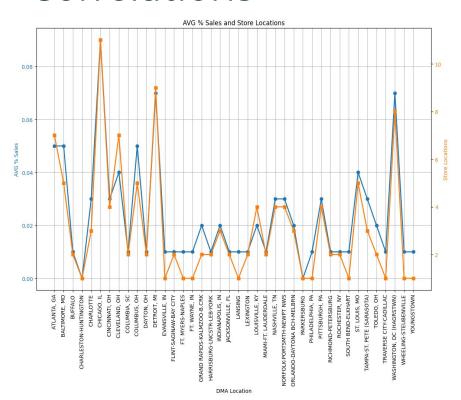
- Data Cleaning: We began by removing any inconsistencies such as repeated columns.
- **Data Formatting:** To streamline our analysis, we reformatted the date information into a standardized date format, such as "2021-08-21."
- **Data Transposition:** Following the cleaning process, we transposed the data, aligning the data structure with our analytical needs.

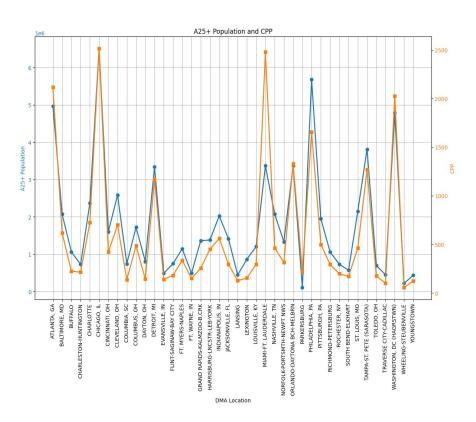


Key Findings



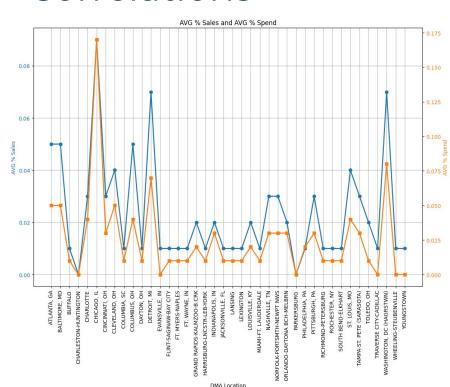
Correlations

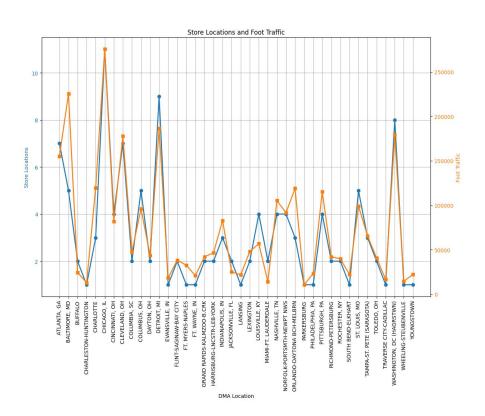






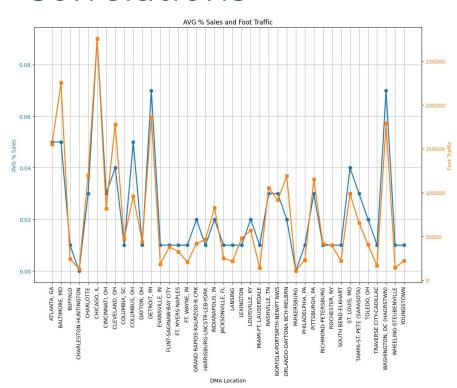
Correlations

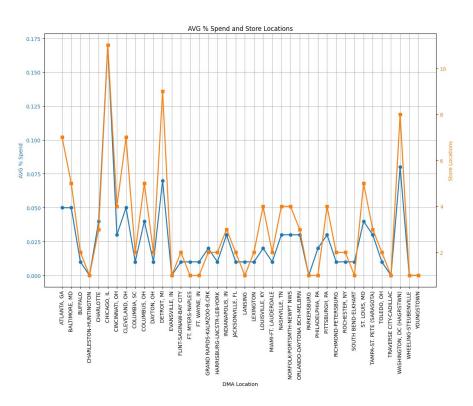






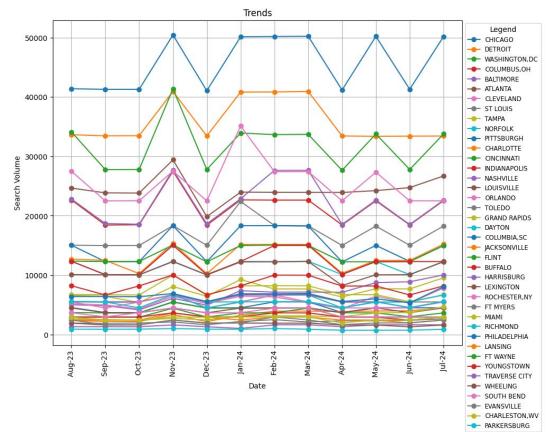
Correlations







DMA Search Volume Trends



Peaks

- Nov. Black Friday season
- Jan-March new years, winter sales, tax refund season
- May & July Spring/summer sales, real estate activity
- July 2024 <u>Colle McVoy</u> announces partnership with ASI

Future

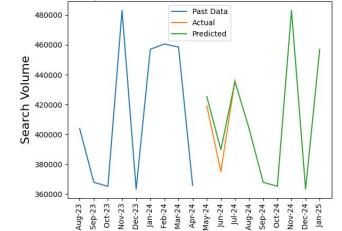
 ASI partners with Progressive Leasing in <u>August 2024</u> (could affect prediction)



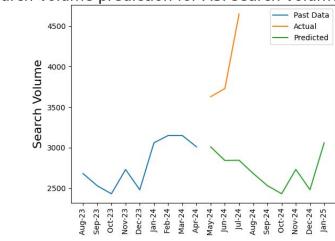
Time-Series Forecasting

- Seasonal ARIMA model
- Forecast for the next six months consistent with patterns observed in the previous year
- Likely overfitting due to the limited dataset
- Significant variability in search volumes across different DMAs

Search Volume prediction for ASI search volume FOR TOTAL



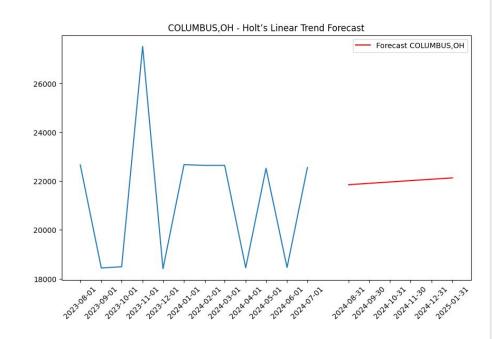
Search Volume prediction for ASI search volume FOR MIAMI





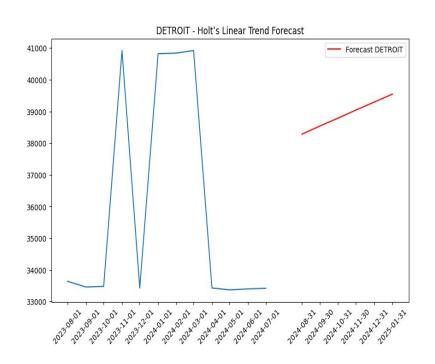
Time-Series Forecasting

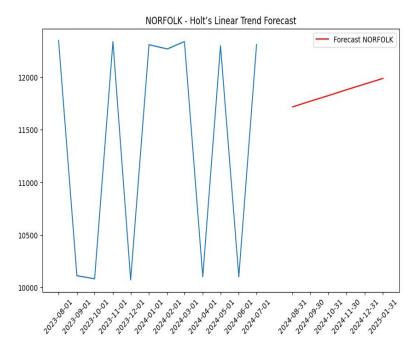
- Holt's Linear Trend forecast model
- Model displays a constant trend rather than capturing seasonality or short-term fluctuations.
- Resulted in projections that lack precisions.
- Forecast should be interpreted as a high-level indicator of general growth or decline.





Time-Series Forecasting Continued







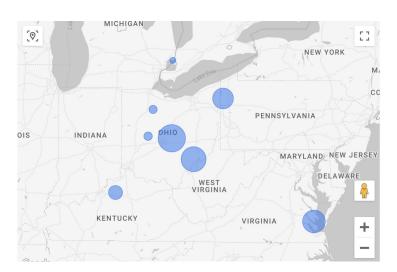
Recommendations & Action Plan



Optimizing ASI Marketing Budget

The following DMAs have a higher share of search than share of voice, indicating strong consumer interest. Focusing spending in these areas will help capitalize on this demand.

- 1. COLUMBUS, OH
- 2. PARKERSBURG, WV
- 3. NORFOLK, VA
- 4. YOUNGSTOWN, OH
- 5. LOUISVILLE, KY
- 6. DAYTON, OH
- 7. TOLEDO, OH
- 8. DETROIT, MI



DMA by Excess Share of Search



Potential Goals

To proportion our spending effectively, we've identified four key goals and simulated various allocation strategies based on each.



Maximizing Population Reach



Supporting Store Presence



Prioritizing High-Sales Performance



Ensuring Cost-Efficiency



Goal 1: Maximizing Population Reach

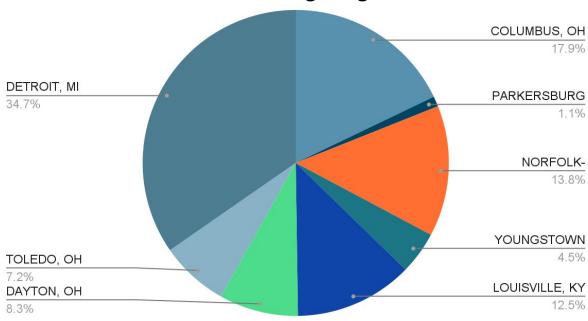
Characteristic = 'A25+ population'

 Spending allocated based on the percentage of the target population across the 8 DMAs to maximize audience reach

Why?

Allocating based on population ensures we reach the largest number of potential customers, expanding the brand's visibility.

Marketing Budget





Goal 2: Supporting Store Presence

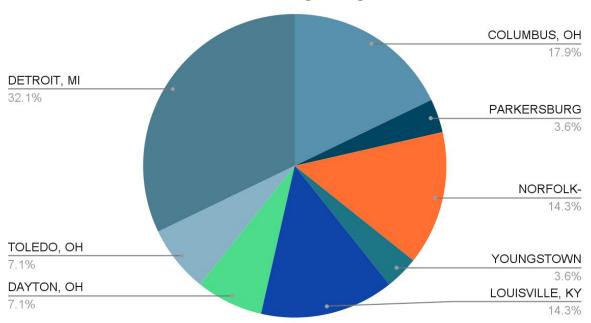
Characteristic = 'Store Locations'

 Spending allocated based on the percentage of store locations across the 8 DMAs to support physical presence.

Why?

Focusing on store locations ensures that marketing efforts align with physical presence, driving foot traffic and enhancing in-store engagement.

Marketing Budget



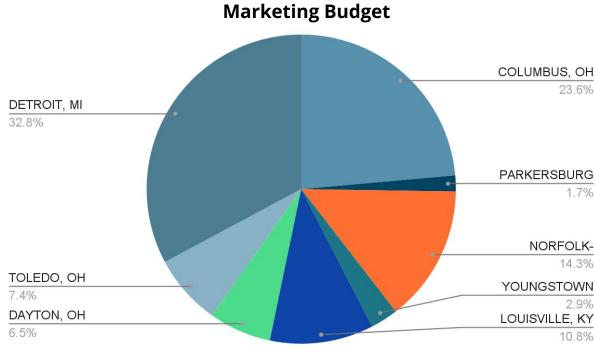


Characteristic = 'AVG % sales'

 Spending allocated based on DMAs with the highest sales performance to drive revenue growth in high-performing areas.

Why?

Focusing on DMAs with high sales maximizes revenue by investing in areas that already demonstrate strong consumer demand and purchasing power.





Goal 4: Ensuring Cost Efficiency

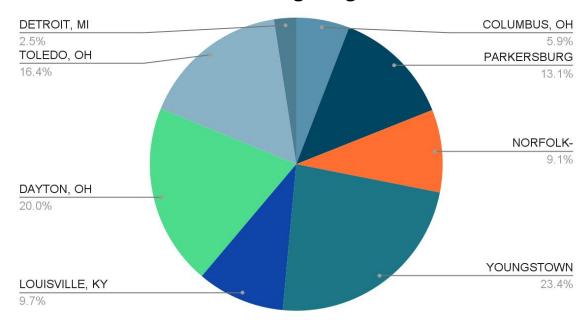
Characteristic = 'CPP'

 Spending allocated based on the inverse of CPP,
prioritizing DMAs with the lowest cost per point to maximize return on investment.

Why?

Prioritizing DMAs with low CPP ensures that we achieve maximum reach while minimizing advertising costs, improving overall campaign efficiency.

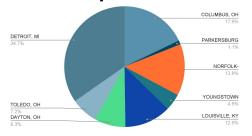
Marketing Budget



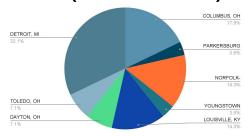


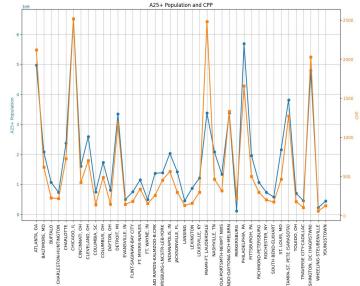
Comparing Goals

Goal 1 (Population Reach)

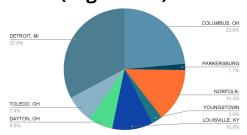


Goal 2 (Store Presence)

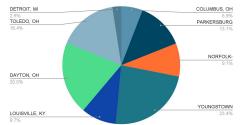




Goal 3 (High Sales)



Goal 4 (Cost Efficiency)





Combining Goals for Optimal Budgeting

Therefore, it is important to allocate the budget not solely based on one factor but by considering all key factors—sales, population, store locations, and CPP—to maximize both efficiency and growth potential across DMAs.





Optimized Budget Allocation Plan

Marketing Budget

Allocating spending based on:

- Cost efficiency
- Population reach
- Store Presence
- High Sales Performance

(each characteristic weighed equally)

Top 3

- 1) DETROIT, MI
- 2) COLUMBUS, OH
- 3) NORFOLK-PORTSMTH-NEWPT NWS

