



User Motivation: Refining Customer Segmentation with Location

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bit.ly/dcla19-acflippo



Maps & Navigation for OEMs

Connected Cars

VIVID Connected
Infotainment

In-Car Commerce

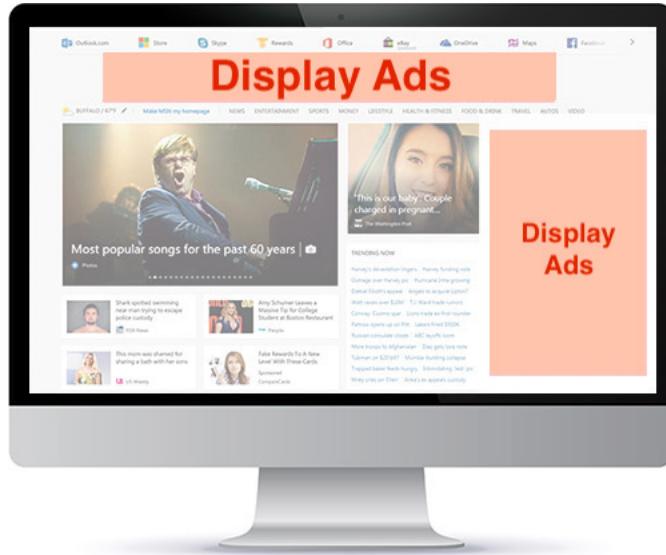
Autonomous Driving
Features

Mobile Advertising Platform

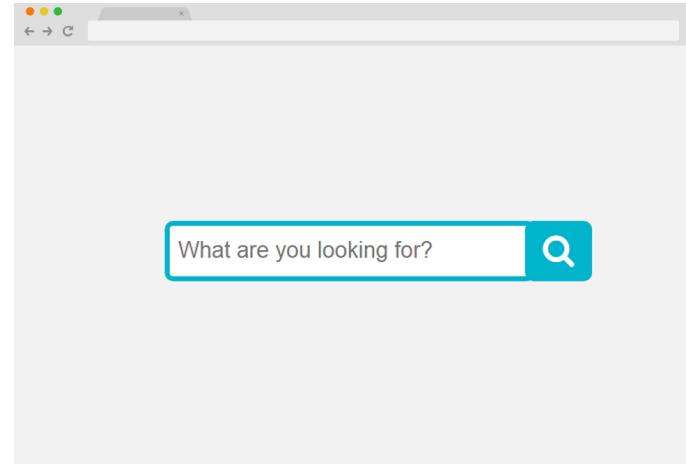
Target People using Location Intelligence:

- where they are
- who they are
- where they have been

Three Four Pillars of Digital Advertising



Display

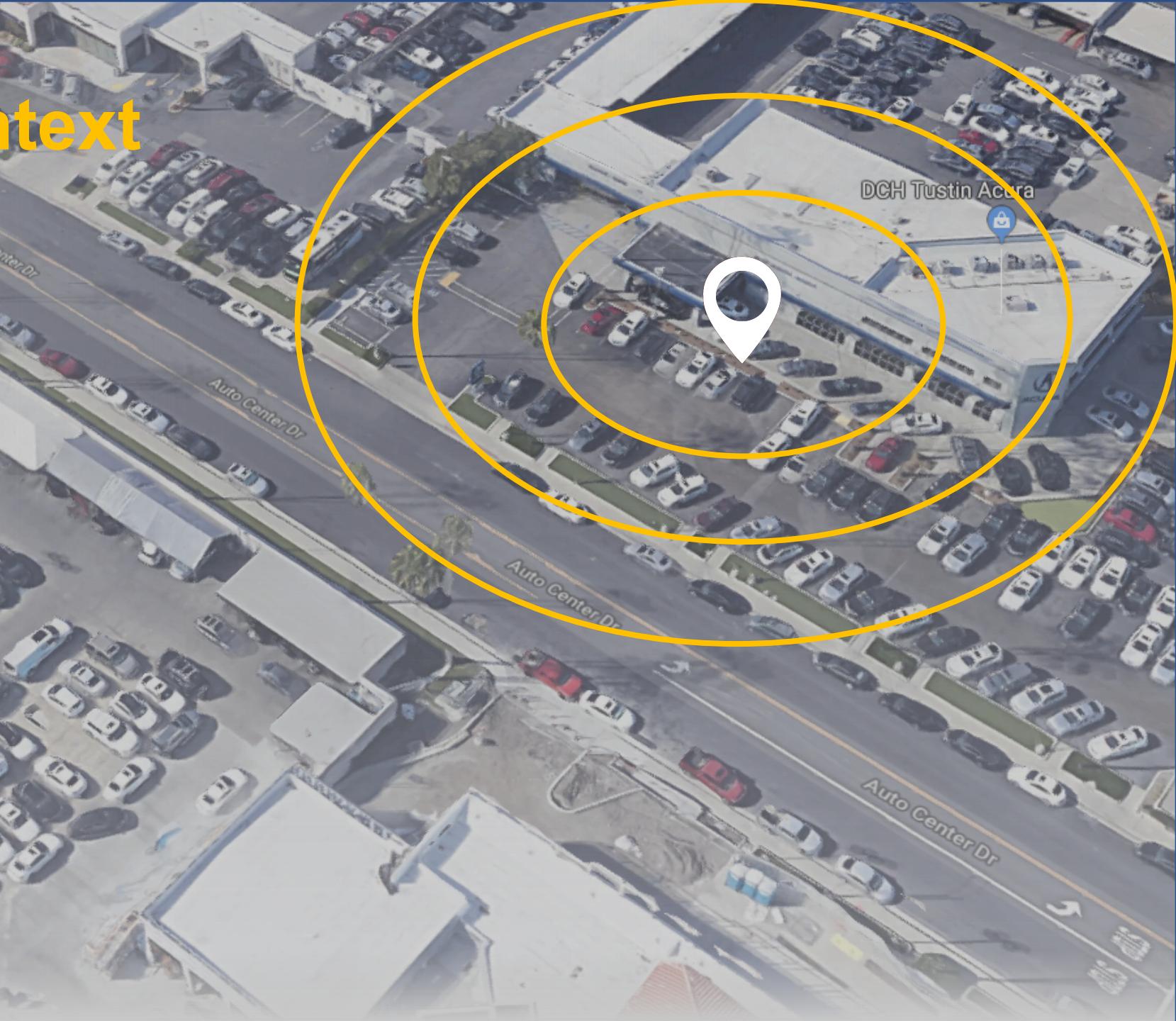


Search



Social
and ...

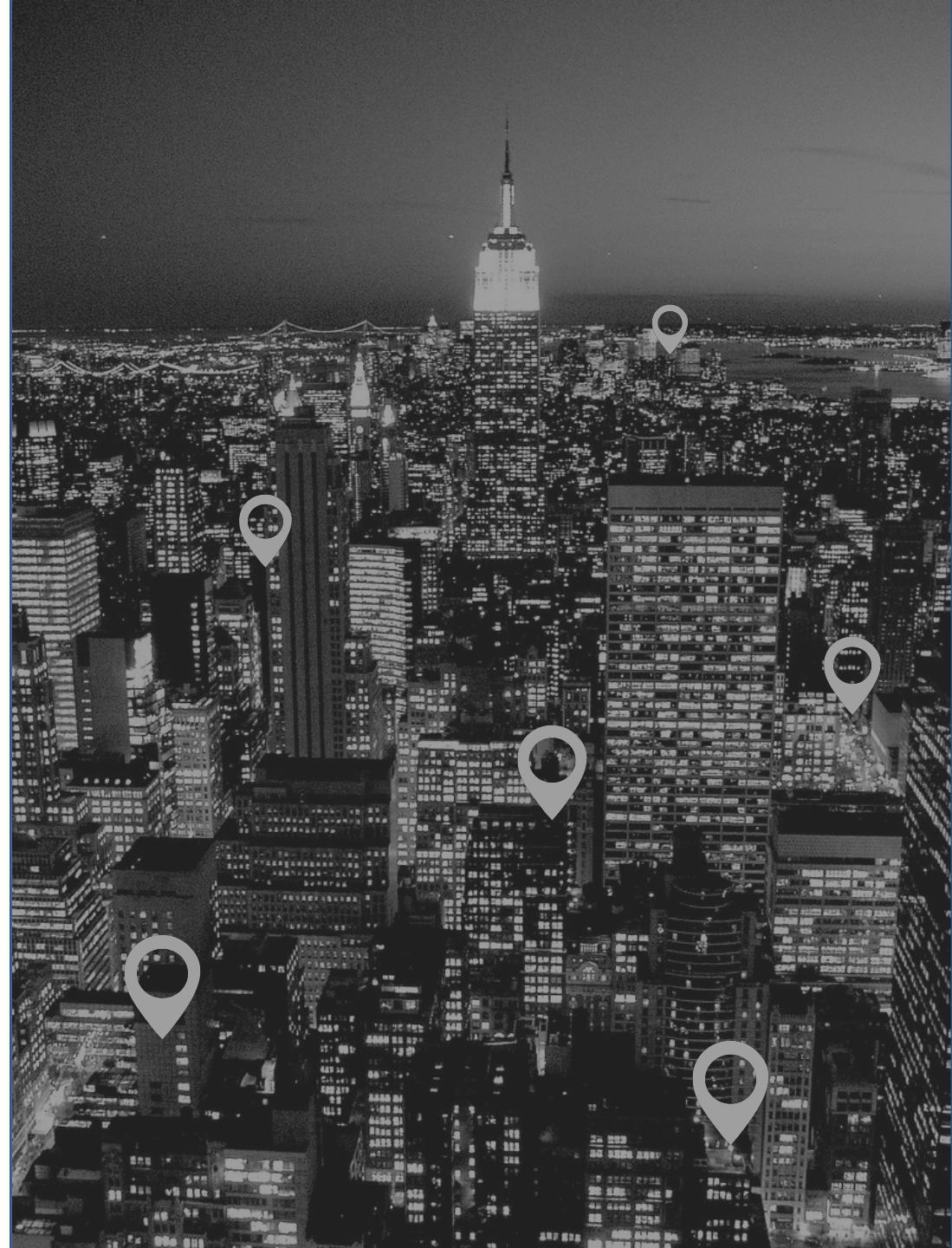
Location is Context



Location Intelligence

It is the process of deriving meaningful insight from geospatial data relationships to solve a particular problem.

- wikipedia



Location Data

This is raw movement data. It is captured by SDK installed within a mobile application.



Location Data Sample

Raw movement data or pings contain time, latitude, longitude, horizontal accuracy and more...

advertiser id	timestamp	latitude	longitude	horizontal accuracy
7C7C76B1-6EAE-41A0-B673-25E6944CEB71	2019-04-01 02:27:56	43.5366519	-80.2594160	4
7C7C76B1-6EAE-41A0-B673-25E6944CEB71	2019-04-01 04:05:45	43.5367120	-80.2593669	12
7C7C76B1-6EAE-41A0-B673-25E6944CEB71	2019-04-01 04:13:58	43.5366199	-80.2593760	5
7C7C76B1-6EAE-41A0-B673-25E6944CEB71	2019-04-01 04:18:42	43.5365600	-80.2593159	16
7C7C76B1-6EAE-41A0-B673-25E6944CEB71	2019-04-01 04:19:57	43.5365600	-80.2593159	12

What is Movement Data?

This is a time series of visits derived from raw data showing how the users are moving around in the world.

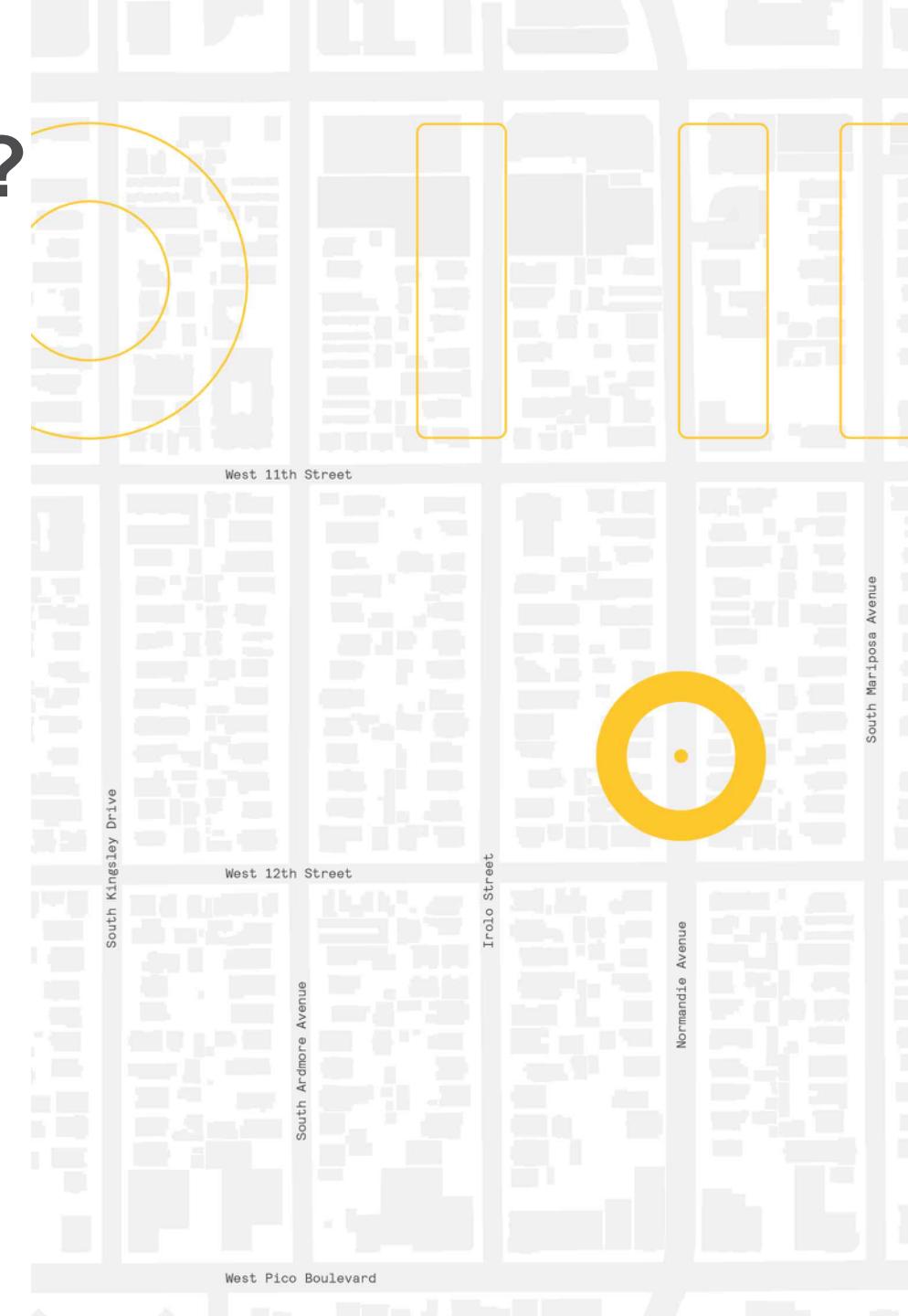
advertiser id	timestamp	latitude	longitude	venue
0000a27a-13a4-48d6-9859-bf4ccf19525b	2019-05-11 09:07:03	39.762427	-121.822576	Safeway
0000a27a-13a4-48d6-9859-bf4ccf19525b	2019-05-11 14:05:45	39.717141	-121.804249	Funland/Cal Skate
0000a27a-13a4-48d6-9859-bf4ccf19525b	2019-05-11 17:35:13	39.760541	-121.845007	Buffalo Wild Wings Grill & Bar
0000a27a-13a4-48d6-9859-bf4ccf19525b	2019-05-12 10:05:24	39.730669	-121.840355	Peet's Coffee
0000a27a-13a4-48d6-9859-bf4ccf19525b	2019-05-12 11:18:42	39.728739	-121.807800	Dick's Sporting Goods



What can we solve with location?

You are a retailer with customers:

- Who are your customers?
- Where else do they go?
- What motivates them?

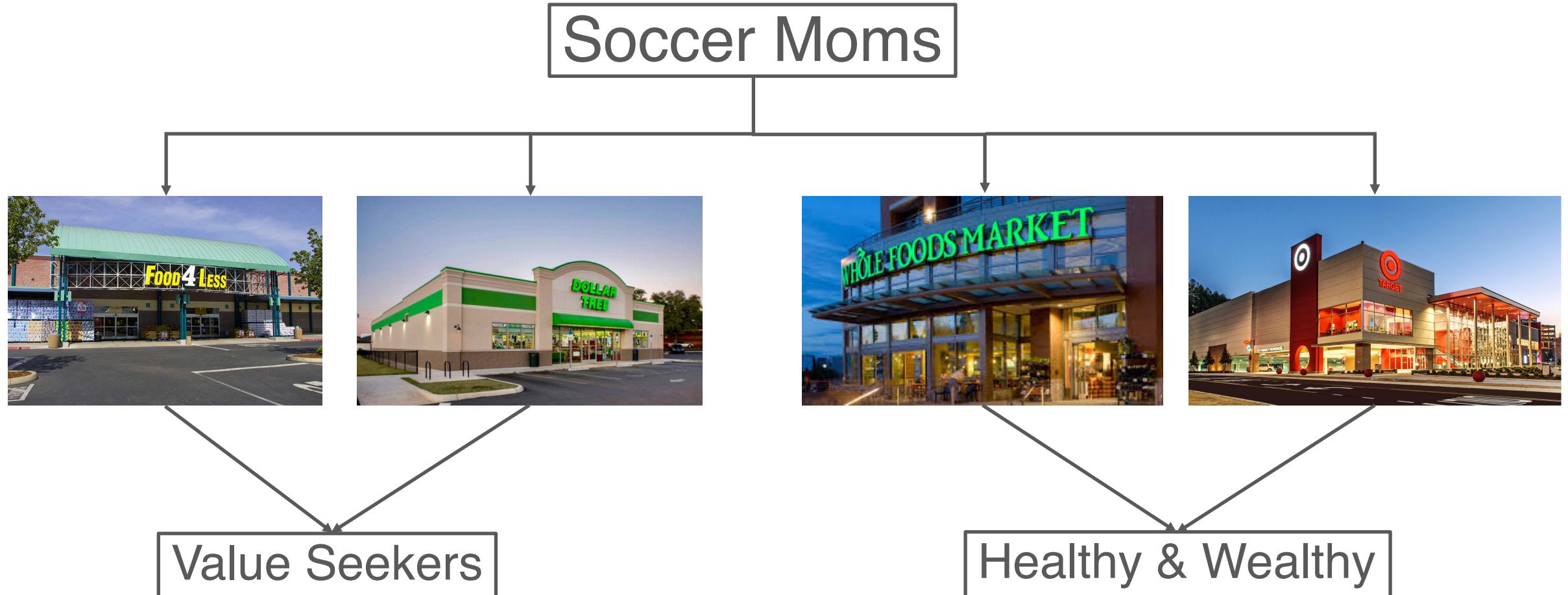


Traditional Persona: Soccer Moms

- Married
- Have Kids
- Active



Traditional vs Hyper-Focused Segments



Hyper-Focused Segmentation

- A customer segmentation rooted in location intelligence where people go in the physical world
- Combines the best of demographics, interests, affinity and location intelligence characteristics

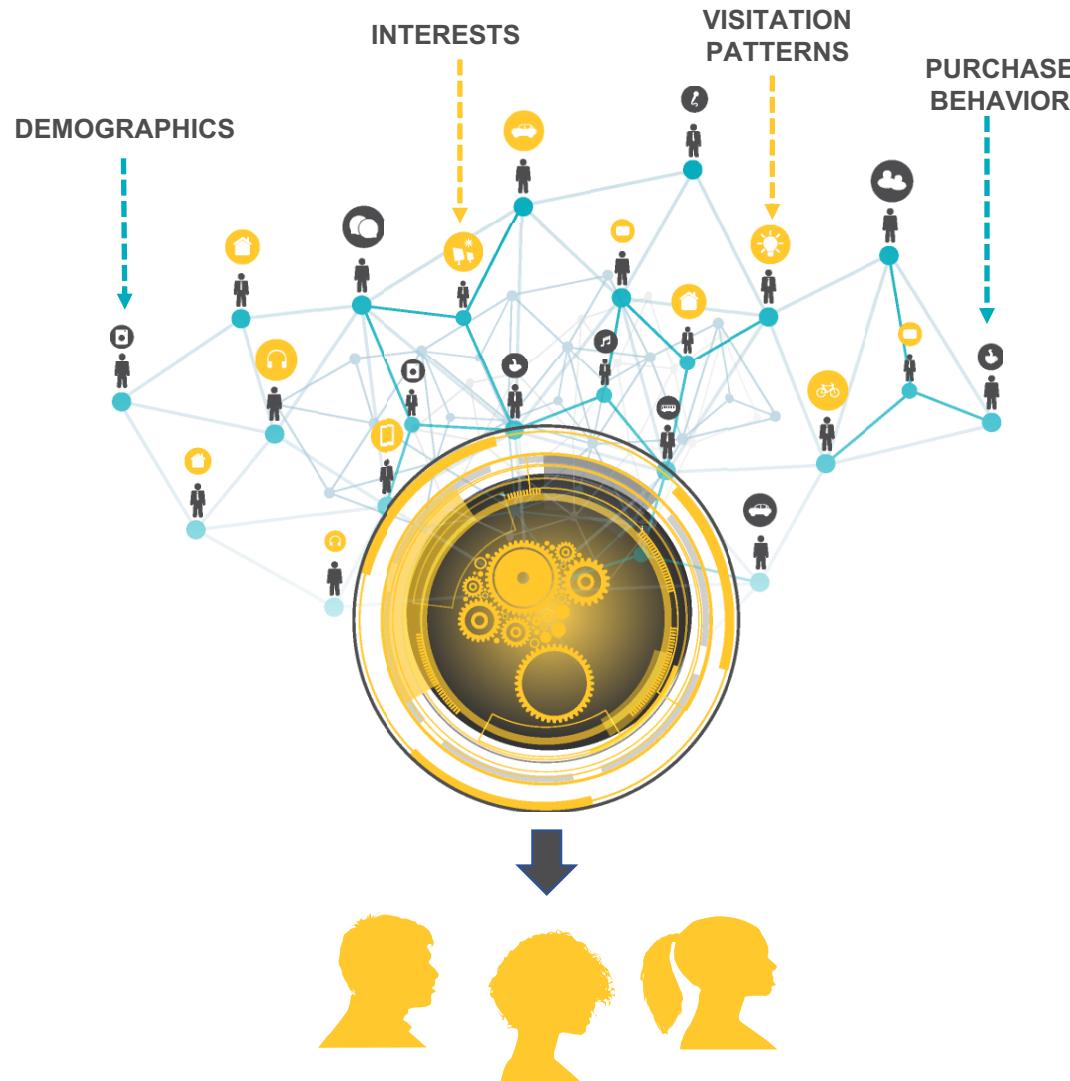


A young girl with blonde hair tied back in a ponytail is shown from the side and slightly from behind. She is wearing a light-colored apron over a pink shirt. She is stirring a large white bowl filled with brownie mix using a wooden spoon. Her left hand rests on the counter next to the bowl. In the background, a black stand mixer is on the counter, and various baking ingredients like flour and sugar are visible.

How is it made?

Hyper-Focused Segmentation

DATA & METHODOLOGY



DATA INPUTS

- 1:1 deterministic visits and demo data
- Visitations Patterns
- Offline Interests
- Online and Social Behaviors

METHODOLOGY

- Machine learning used to analyze billions of data points
- Expert humans perform thorough cluster & post-cluster analyses
- Customer groupings developed and used for insights and targeting

Why use Machine Learning?

OUR DATA SOURCES:

- Our Mobile Audience Panel have 40MM+ MAU
- 700MM+ visits per month
- 200MM+ mobile ids with demographic, interests & affinity

This is simply too much data for humans to sift through. Additionally, we want a data-driven, bottoms-up, un-biased way to group users. Machine Learning to the rescue.



What does the algorithm do?

- Use machine learning techniques* (i.e. unsupervised clustering algorithm) to sort through all the data to find groups of people that are the most alike
- Post-cluster analysis to understand the main focus of each cluster
- Label the cluster with users' motivation
- Build our segments tailored for different industries (grocery, restaurants, retail & auto)

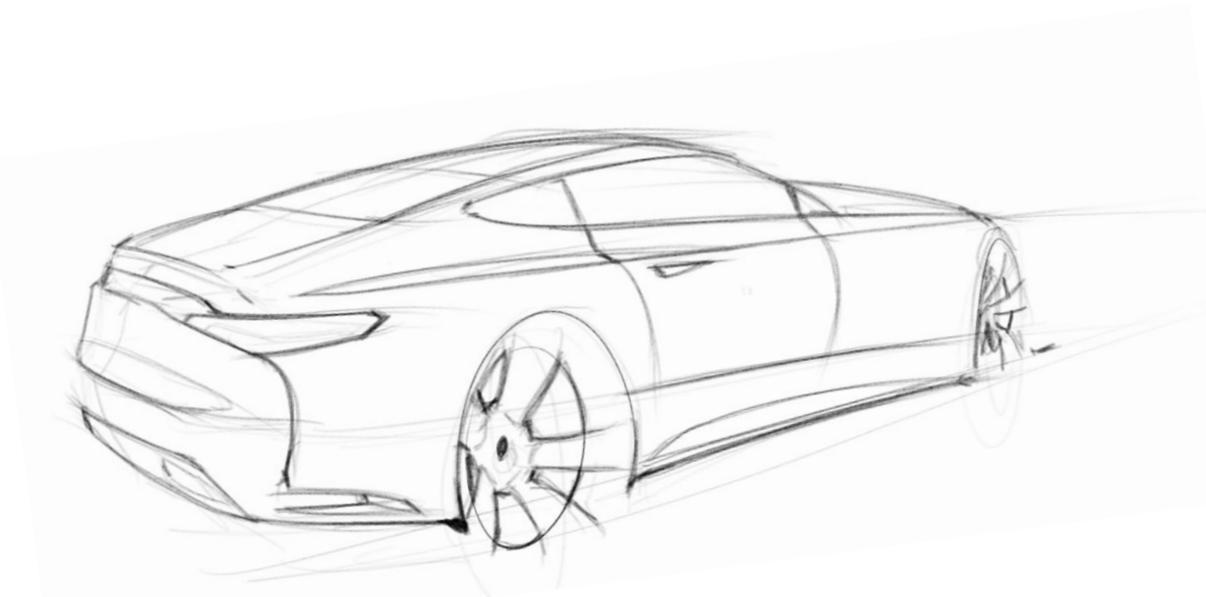


*Exact detail on how the algorithm works is a big topic and will not be covered here. See references:

- <https://www.ritchieng.com/machine-learning-project-customer-segments>
- <https://towardsdatascience.com/clustering-algorithms-for-customer-segmentation-af637c6830ac>

Why make Industry Segments?

- Better to capture the traits of the industry
- Perform custom feature engineering per industry
- Result in very tailored segments with:
 - Appropriate number of clusters
 - Distill more focused motivation





Challenges in Using Visit Data

- Visits are observed
- Observed visits do not represent all the places a person actually go
- You might miss important visits
 - The diner may not take out her phone during her fine dining experience
 - You may not have an app that has the SDK that shares location during a visit

A photograph of a group of people at a restaurant. Several hands are visible holding glasses, some containing red wine and others beer, as they clink them together. The table is filled with various dishes, including what looks like a large bowl of soup or stew. The background shows other diners and restaurant staff.

Overcome Shortcomings

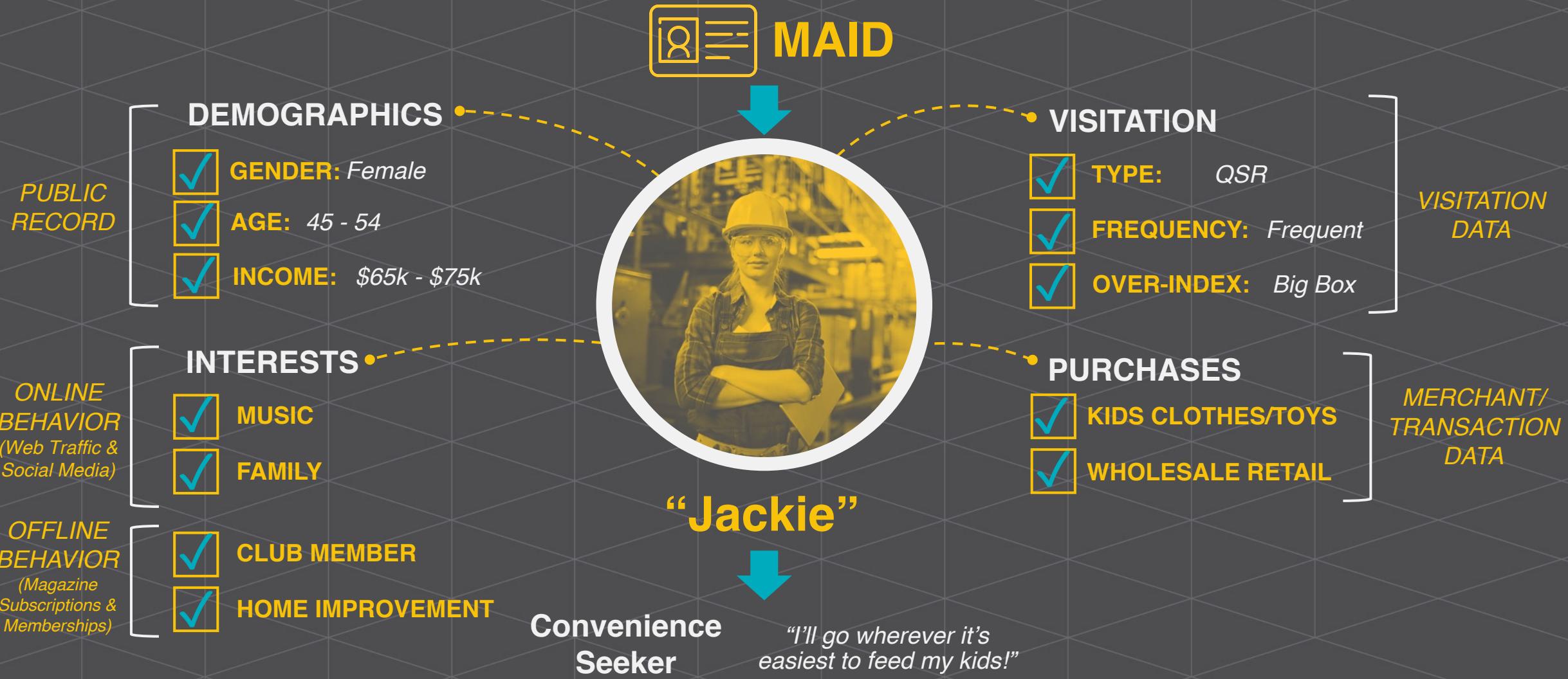
- Use a large sample size
- Use a longer time span
- Average out unobserved visits in a large group of people
- Calculate percentages of overall visits or bin frequency of visits into terciles or quantiles



Customer Segments

Segments in Context

“JACKIE” – A ‘CONVENIENCE SEEKER’ DINING GEOTYPE



Automotive GeoType in Context

“HAROLD” – A MASS MARKET HYBRID GEOTYPE



MAID



“Harold”

CAR TYPE



PUBLIC RECORD

ONLINE BEHAVIOR
(Web Traffic & Social Media)

USER DATA

DEMOGRAPHICS

- GENDER: Male
- AGE: 35 - 54
- INCOME: High

OWNERSHIP

- TYPE: Hybrid
- CLASS: Mass Market
- AFFINITY: Toyota

AUTO DATA

INTERESTS

- | | |
|---|--|
| <input checked="" type="checkbox"/> COOKING | <input checked="" type="checkbox"/> OUTDOOR SPORTS |
| <input checked="" type="checkbox"/> INVESTING | <input checked="" type="checkbox"/> FITNESS |

OFFLINE BEHAVIOR
(POI Visits, Magazine Subscriptions & Memberships)

Automotive GeoType

SUSTAINABLE SINGLES

“I treat myself, but life is about balance.”



SIT-DOWNS & STEAKHOUSES

Age: 45 - 64

Sex: Both

Income: Mid - High

Education: Bachelors or Higher

Family Status: Married / with Children



"We love treating the family to a great meal on the weekend."



Motivations

- Family
- Quality



Frequently at

- Family restaurants
- Golf retailers
- Fitness centers
- Wine stores
- Daycares
- Supermarkets



Brand Affinity

- Texas Roadhouse
- Olive Garden
- Chili's
- Red Robin
- Denny's
- IHOP



May Drive



ACURA
LEXUS



AUDI
BMW GROUP

OVERVIEW

Users within the Sit-Downs & Steakhouses are not frequent restaurant goers, but when they do (typically on the weekends) it's a full-service restaurant that's perfectly suited for their family. They're working professionals and parents who have average to high incomes, focusing their time and attention between career and family. Any venue that helps them to connect over a meal with their family is a match for this consumer.

Beyond family time and work, they lead active lives – they are highly interested in luxury vehicles (which their incomes can afford) and plan outings for their families to go see movies on weekends, as well as nice vacations to major amusement parks. They also steal away a little time for themselves to invest in fitness.

Family-style restaurants are the clear domain of this GeoType. Their average to above average incomes guarantee their ability to enjoy a wide variety of establishments, as well as investing in quality lives for their families as they grow.



FAST FOODIES

Age: 45 - 74

Sex: Both

Income: High

Education: Graduate Degree

Family Status: Married / Children



"I like fast food, but I've got high standards..."



Motivations

- Quality



Frequently at

- Golfing retailers
- Wine stores
- Gyms / fitness
- Daycare facilities
- Supermarkets
- Book stores



Brand Affinity

- In-N-Out Burger
- Trader Joe's
- Whole Foods
- Starbucks



May Drive



ACURA



AUDI



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INFINITI

OVERVIEW

Not to be mistaken for *fast food aficionados*, Fast Foodies are actually those who have highly refined palates and apply it to their choices in places to dine. In particular, they focus on quick-service restaurants (and even grocers) that meet their high expectations in taste and quality. As opposed to mass-market QSRs, they're more likely to be observed at smaller, regional restaurants that focus on quality, such as In-N-Out.

If they're not dining out, Fast Foodies prefer to purchase food items and ingredients from grocers such as Whole Foods or Trader Joe's. This falls in line with their demographic profile, which is more highly educated and affluent than the average consumer. Outside of dining, they are keenly interested in fitness (this group is often 'seen' at gyms/fitness centers) and reading. They also travel frequently and are interested in golfing.

These consumers apply their discerning tastes to every aspect of their lives and maintain a level of affluence to attain what they want. Reaching this consumer will rely heavily on playing to that core concern. If you can guarantee that, you will have a new customer.

How can it be used?

Two Main Use Cases:

Insights Reporting

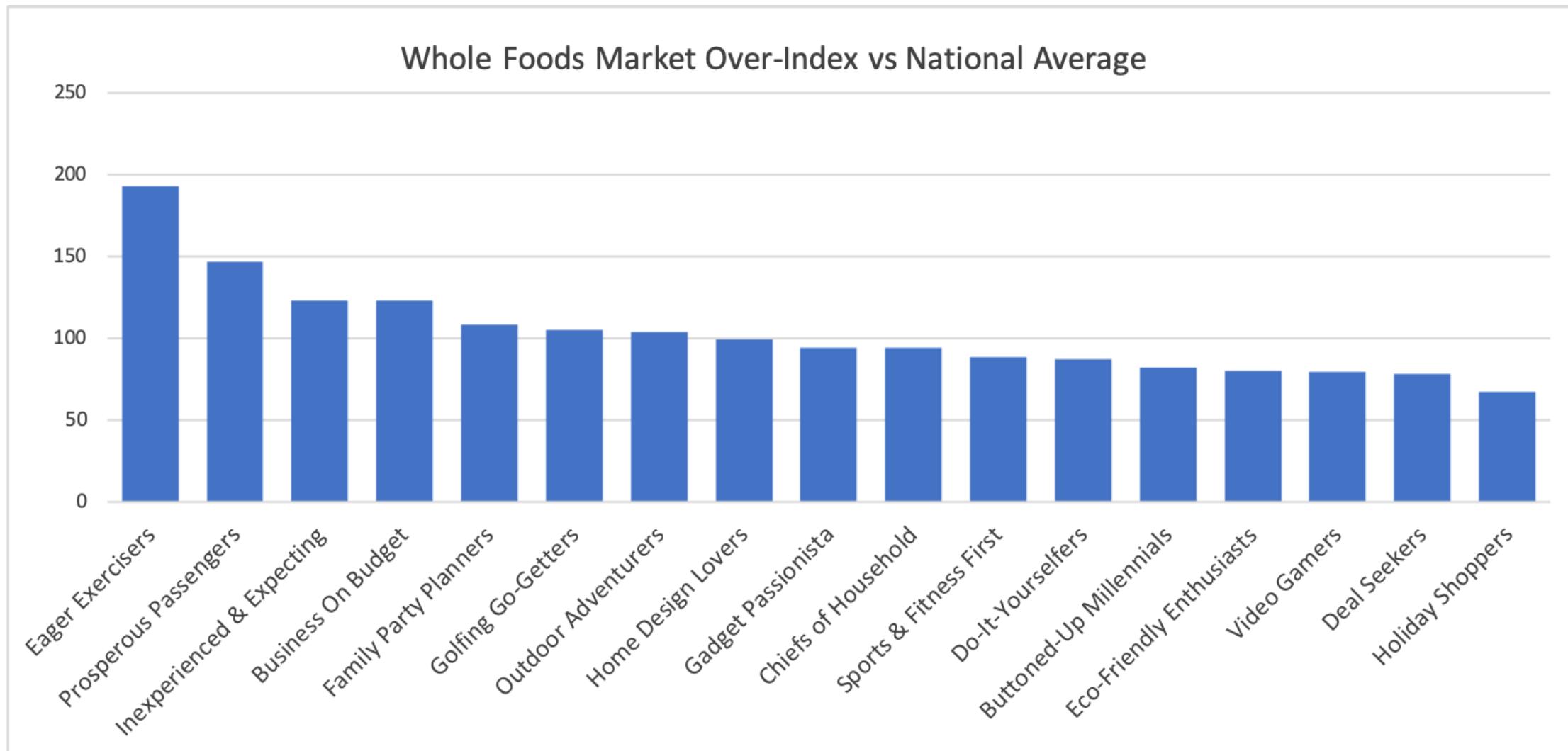


Targeting



GeoType

Insights Report



Use Case

Scenario: a protein shake brand sold in Costco

- Did not want to target everyone who goes to Costco
- Target most relevant groups of hyper-focused segments
 - Healthy & Wealthy
 - Lean & Green
 - Fitness Enthusiasts
- Resulted in 23% lift in visits over control group
(measured by 3rd party)





Thank You!



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