

The background of the slide is a light gray gradient. It is decorated with numerous realistic water droplets of various sizes. Some droplets are at the top left, some are along the right edge, and others are scattered at the bottom. The droplets have highlights and shadows, giving them a three-dimensional appearance.

IBM APPLIED DATA SCIENCE CAPSTONE REPORT

**EVALUATING RESTAURANT LOCATIONS BY TORONTO WELLBEING
HEALTHY FOOD INDICES AND VENUE AVERAGE HEALTH RATINGS**

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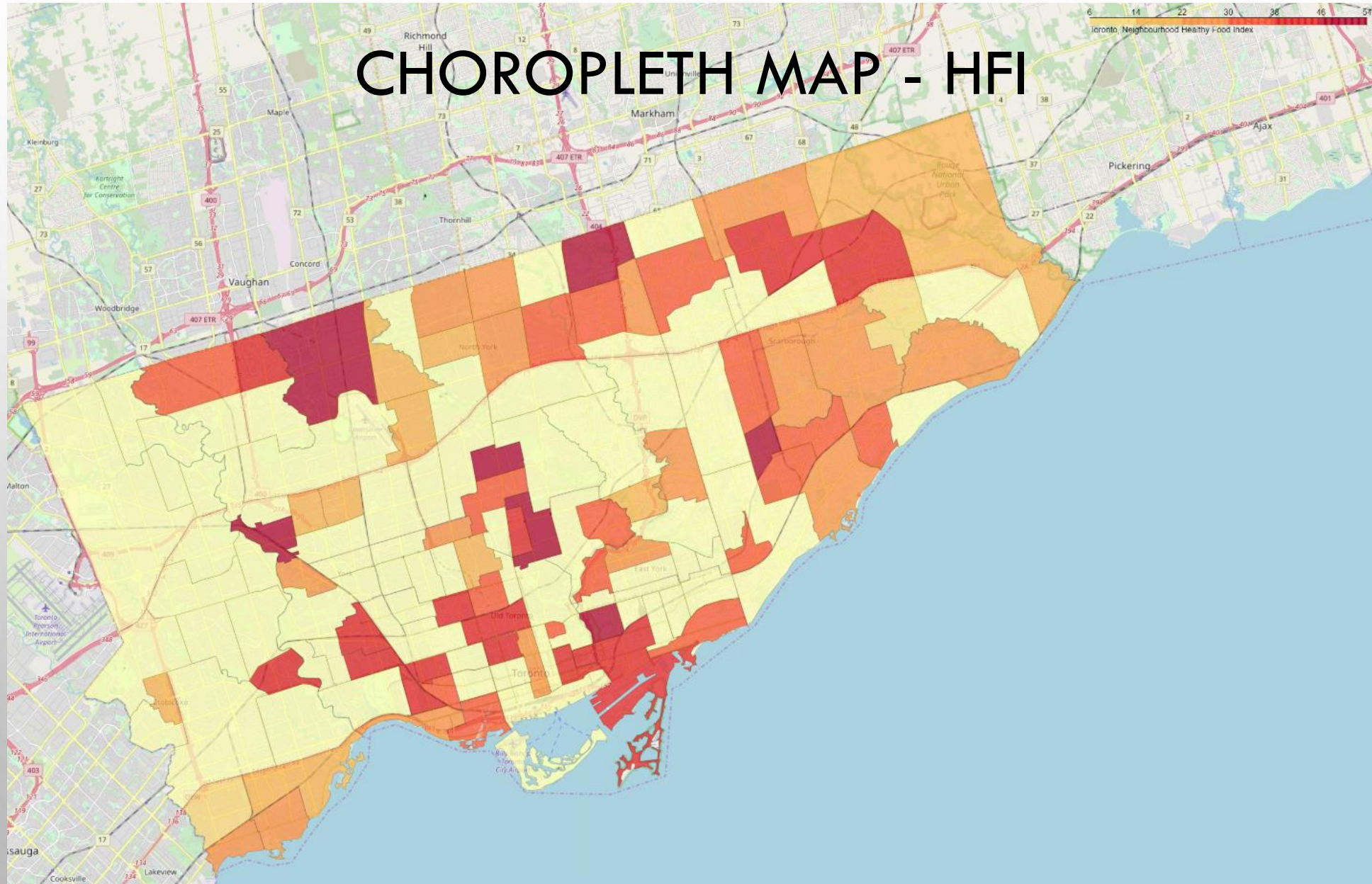
DEMAND FOR HEALTHY FOOD IS GROWING

- HEALTHY RESTAURANT BRANDS ARE ADAPTING E.G. WITH HEALTHY INGREDIENTS
- CHALLENGE: TO IDENTIFY AND BALANCE COMPETING DEMAND FACTORS
 - E.G. GENUINELY HEALTHY, ORGANIC FOODS AND LOW COST
 - TARGET DEMAND IN HEALTH-CONSCIOUS NEIGHBOURHOODS
- AIM: IDENTIFY RESTAURANT LOCATIONS IN UNDER-SERVED, HEALTH-CONSCIOUS NEIGHBOURHOODS IN TORONTO
 - MAKE INVESTMENT AND OPERATIONS DECISIONS BASED ON DATA INSIGHTS
 - IDENTIFY FACTORS FOR DECISION FRAMEWORK

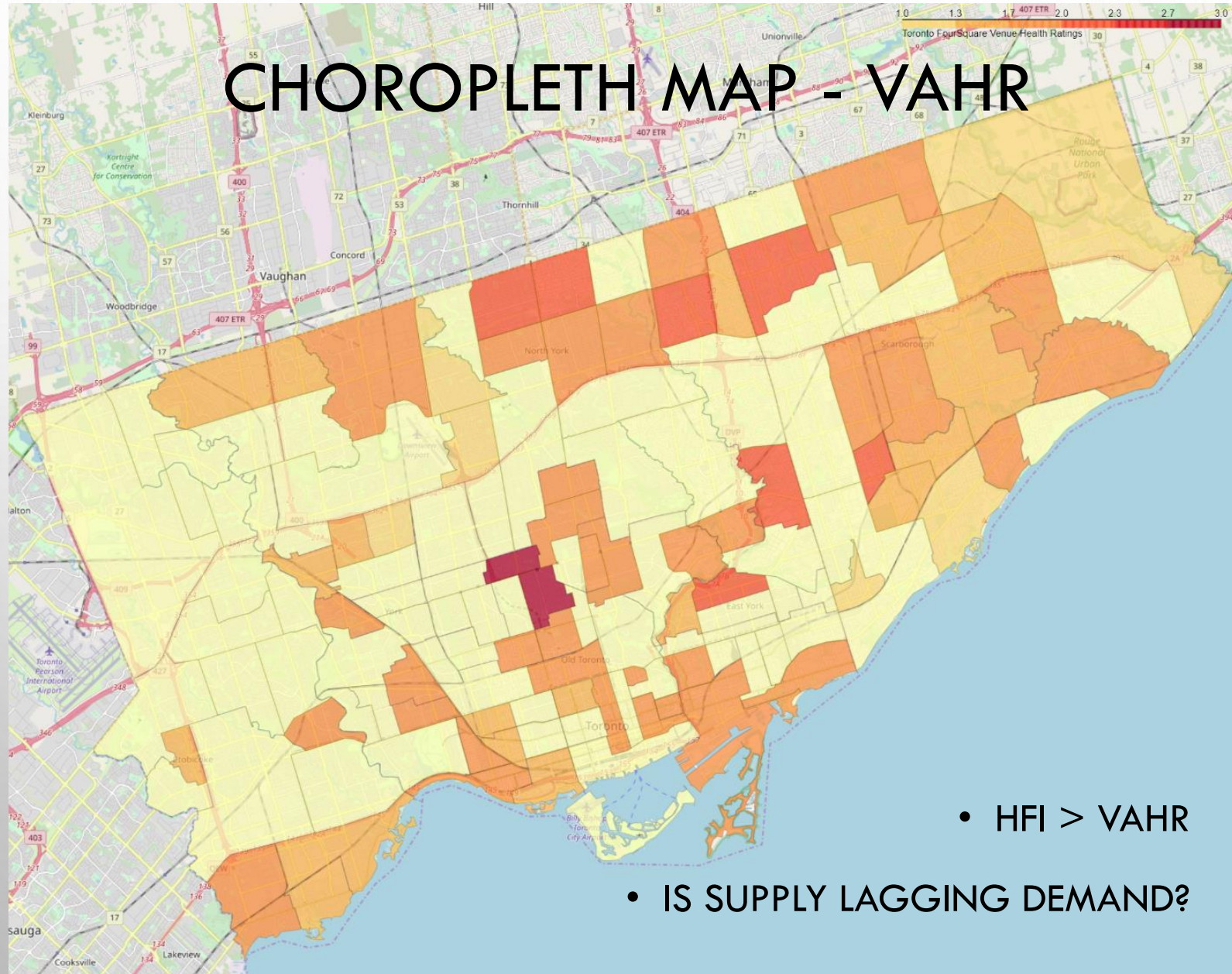
DATA SOURCES AND PREPARATION

- NEIGHBOURHOOD WELLBEING TORONTO HEALTHY FOOD INDEX (HFI)
 - 140 NEIGHBOURHOODS
 - POPULATIONS
 - HFI RANGE: 7 TO 53 (RELATIVE INDEX)
- FOURSQUARE NEIGHBOURHOOD VENUES & CATEGORIES
 - 1700+ FOOD VENUES; 115 FOOD CATEGORIES
- VENUE CATEGORY HEALTH RATINGS
 - 3 = HEALTHY; 2 = MODERATE; 1 = UNHEALTHY
 - *"10 HEALTHIEST CUISINES"* HEALTHLINE.COM (2016)

CHOROPLETH MAP - HFI



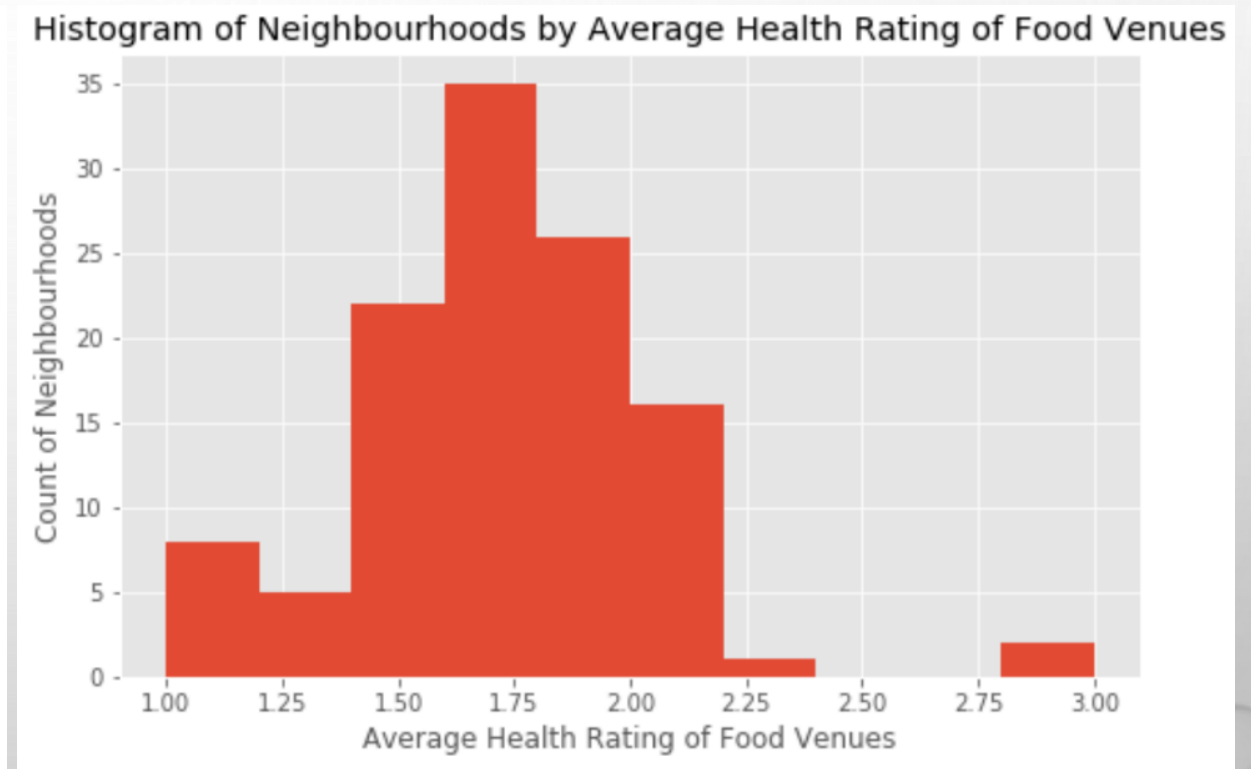
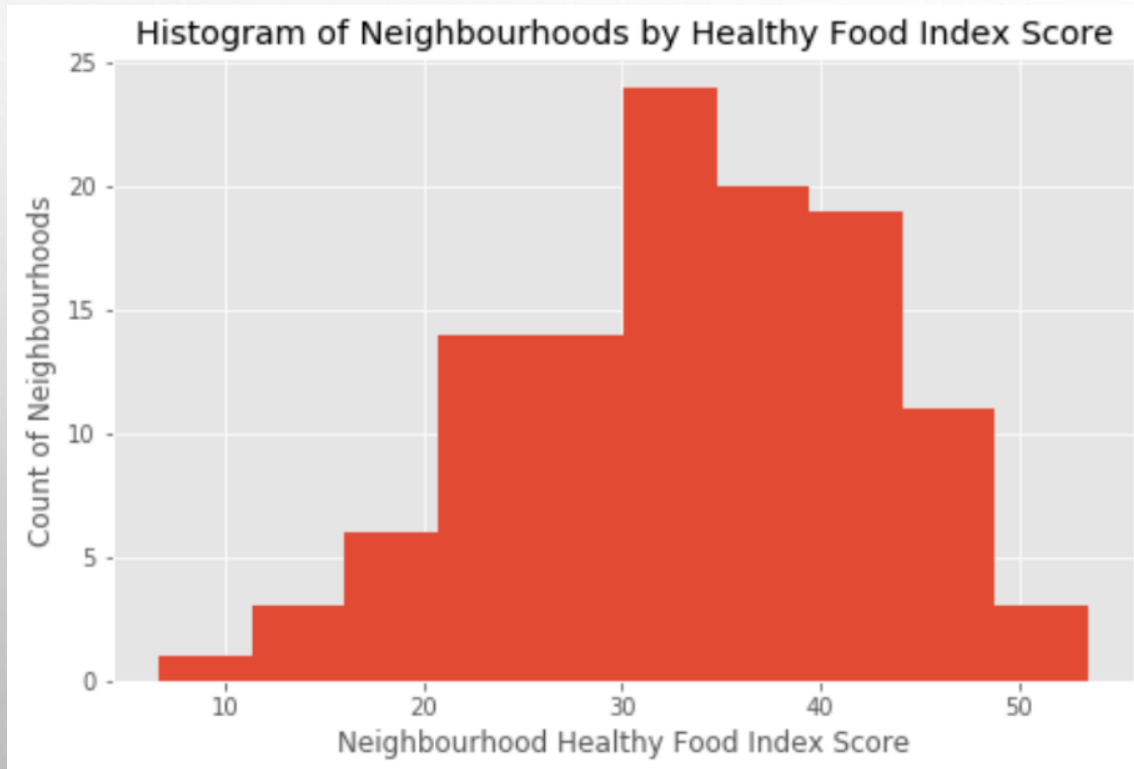
CHOROPLETH MAP - VAHR



• $HFI > VAHR$

• IS SUPPLY LAGGING DEMAND?

DISTRIBUTIONS OF HFI : VAHR



CLUSTERING OF VENUE CATEGORIES

- # CLUSTERING OF VENUE CATEGORIES

CLUSTER DATA SAMPLE

Shape is: (9, 17)

	Neighbourhood	Venue Category	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
9	Thistletown	Caribbean Restaurant	0	Caribbean Restaurant	Vegetarian / Vegan Restaurant	Tea Room	Eastern European Restaurant	Fish Market	Fruit & Vegetable Store	Gluten-free Restaurant	Gourmet Shop	Greek Restaurant	Health Food Store
10	Thistletown	Caribbean Restaurant	0	Caribbean Restaurant	Vegetarian / Vegan Restaurant	Tea Room	Eastern European Restaurant	Fish Market	Fruit & Vegetable Store	Gluten-free Restaurant	Gourmet Shop	Greek Restaurant	Health Food Store
35	York University Heights	Caribbean Restaurant	0	Caribbean Restaurant	Vegetarian / Vegan Restaurant	Tea Room	Eastern European Restaurant	Fish Market	Fruit & Vegetable Store	Gluten-free Restaurant	Gourmet Shop	Greek Restaurant	Health Food Store
53	Parkwoods	Caribbean Restaurant	0	Caribbean Restaurant	Vegetarian / Vegan Restaurant	Tea Room	Eastern European Restaurant	Fish Market	Fruit & Vegetable Store	Gluten-free Restaurant	Gourmet Shop	Greek Restaurant	Health Food Store
104	North St.James Town	Caribbean Restaurant	0	Caribbean Restaurant	Market	Vegetarian / Vegan Restaurant	Health Food Store	Eastern European Restaurant	Fish Market	Fruit & Vegetable Store	Gluten-free Restaurant	Gourmet Shop	Greek Restaurant

CLUSTERING SUMMARY

Cluster #->	One	Two	Three	Four
Neighbourhoods	5	21	23	7
Venues	9	101	107	27
Most common venues	Caribbean/Greek Vegetarian/vegan tea Room	Juice /smoothie/tea Middle Eastern Sushi	Sushi Salad/Vegetarian/vegan Greek/Caribbean	Vegetarian Tea/Juice/smoothie Health food/organic
Max Population	34805	31180	65913	31340
Min Population	10360	7804	7865	11785
Max HFI	47	50	52	47
Min HFI	27	20	18	32
HFI range	20	30	34	15
Max cluster patterns per neighbourhood	3	9	10	13

Table 1: Summary of Cluster Results

FACTOR SUMMARY

- TARGETS

- COMPETITION - TOP 3 CATEGORIES*
- HIGH HFI
- LOW VAHR*
- HIGH POPULATION
- DEMOGRAPHICS*

* TAILOR TO MARKET STRATEGY

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HFI VS VAHR

- TAILOR TO MARKET PENETRATION STRATEGY AND PRODUCT UNIQUENESS
- CPT*: TARGET HIGH DEMAND, HIGH SUPPLY
OR
- AVOID DIRECT COMPETITORS
OR
- PURSUE EASY ENTRY (LOW BARRIERS)

HFI	high	<ul style="list-style-type: none"> - high demand, low supply - opportunities for new entrants - broad range of venue category options 	<ul style="list-style-type: none"> - high demand, high supply - select or low opportunities for new entrants - need to carefully target venue category choices
	low	<ul style="list-style-type: none"> - low demand, low supply - low opportunities for new entrants - choose venue categories to drive demand 	<ul style="list-style-type: none"> - low demand, high supply - very low opportunities for new entrants - very narrow range of venue category options
		VAHR	
		low	high
Legend			
Good opportunities			
Moderate opportunities			
Poor opportunities			

FACTOR SUMMARY

- POPULATION/DEMOGRAPHICS
 - HIGH POPULATION – GREATER OPPORTUNITY?
 - NUMBER OF VENUES – EMBRACE OR AVOID COMPETITION
 - POPULATION TO VENUE RATIO – IDENTIFY HIGHER RATIO FOR OPPORTUNITIES
- TOP VENUES
 - EMBRACE DIRECT COMPETITION – AIM AT SAME TOP THREE
 - AVOID DIRECT COMPETITION – SEEK SIMILAR CATEGORIES BUT NOT SAME
 - AVOID COMPETITION – MARKET DEVELOPMENT
 - IDENTIFY COMPLEMENTARY VENUES – DISSIMILAR BUT SAME MARKET DEMAND CHARACTERISTICS

FUTURE DIRECTIONS

- TOPOGRAPHICS & DEMOGRAPHICS – ADDITIONAL RESOURCES
 - POPULATION DENSITY
 - AGE DISTRIBUTION
 - ACCESS TO PUBLIC TRANSPORTATION
 - ROAD NETWORKS
 - PUBLIC AMENITIES
 - ATTRACTIONS
 - GEOGRAPHY
- MARKET STRATEGY MODEL
 - INCORPORATE EXISTING BUSINESS MODELS

CONCLUSION

- UNIQUE DATA MERGES LEADS TO UNIQUE INSIGHT POTENTIAL
 - HFI DATA, FOURSQUARE VENUES, AND VENUE HEALTH RATINGS
- VISUALS HIGHLIGHT OPPORTUNITIES
 - CHOROPLETH MAPS – HIGHLIGHT DEMAND AND SUPPLY LOCATION OPPORTUNITIES
 - HISTOGRAMS – DIFFERENTIAL HEALTH DISTRIBUTIONS ACROSS NEIGHBOURHOODS
- CLUSTERING
 - IDENTIFIES SIMILAR/DIFFERENT VENUES BY CATEGORY
- OTHER FACTORS CONTRIBUTE TO LOCATION DECISION FRAMEWORK