London Venue Analysis

A business proposal for the opening of three+one new coffee shops in Greater London Area

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Business Problem

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Company

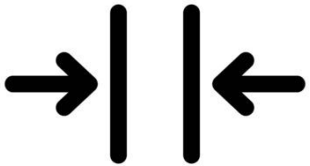
Our customer is a medium sized company operating in the coffee shop retailing.

Context

They are going to open three new shops in **Outer London Area** plus one flagship in the **Inner London Area**.

Problem Constraints

1. The shops must be **well spread** over the Greater London Area.
2. The shops should be placed in areas with **low concentration of "competitors"** (i.e. franchise with 3/6 shops)
3. The shops should be placed in areas with proven relatively **high business survival rate**.
4. The shops should be placed in **mid\high populated areas**.
5. The three standard shop should be placed each of them, in a geo cluster to be defined.



Data Sourcing, Linking and Usage

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Greater London Authority

Foursquare

Combined Sources

London Boroughs Profile

The official datastore for London demographic and economic stats is used to gather the needed information **point 1-3-4-5 in Problem Constraints**.

Foursquare

Foursquare will be used to explore London boroughs in search of existing shops, it will be useful to satisfy **point 2 in Problem Constraints**.

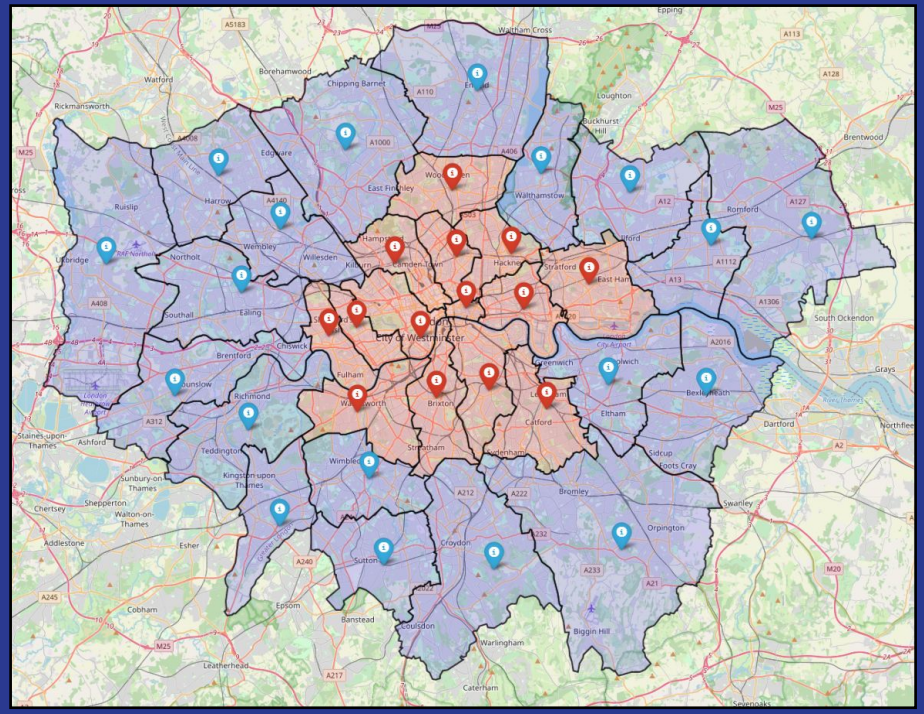
Cross-linked Information

Once each competitors shop will be linked with boroughs stats, we will be able to resume all the needed info and provide the outcomes our client is looking for.

Methodology and Results

Greater London

- The so called “Greater London Area” is made by **33 boroughs**
- **14 boroughs** are in the **Inner London** **(red districts in the map on the right)**
- **19 boroughs** are in the **Outer London** **(blue districts in the map on the right)**

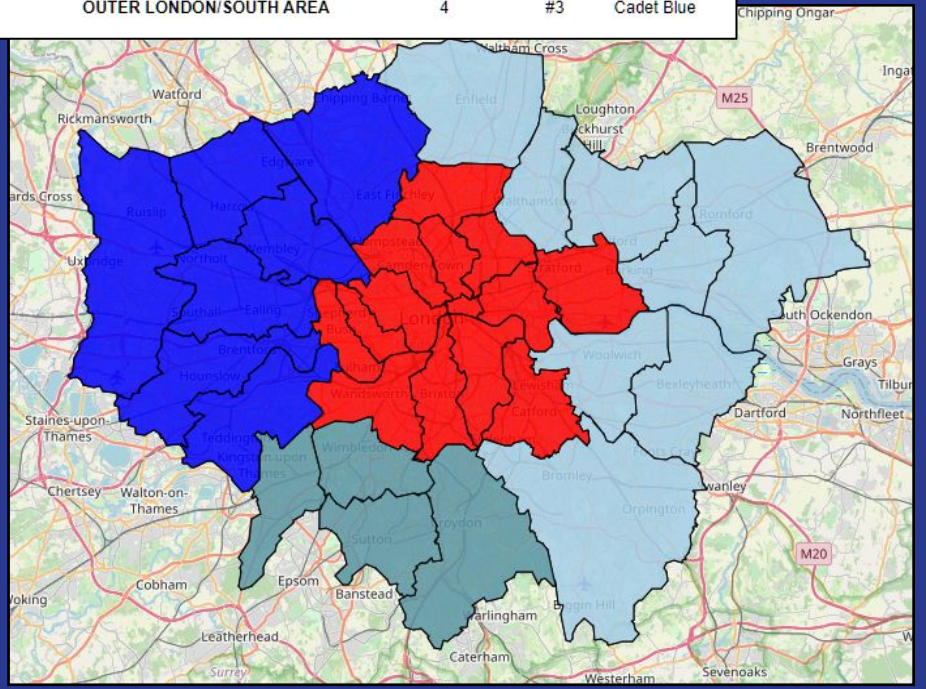


The 33 Greater London Boroughs

k-Means Clustering

- The **Outer London** boroughs have been **CLUSTERIZED** by leveraging data coming from **Greater London Authority** and **OpenStreetMap.**
- The clustering algorithm used is **k-Means** (as per scikit-learn implementation).
- The four areas will host **three shops** (the blues, one per each cluster) plus **one flagship** (the red).

Area	Boroughs No	Cluster No	Color
INNER LONDON	14	#0	Red
OUTER LONDON/WEST AREA	7	#1	Dark Blue
OUTER LONDON/NORTH AND EAST AREA	8	#2	Light Blue
OUTER LONDON/SOUTH AREA	4	#3	Cadet Blue



The clustering of OUTER LONDON Boroughs based on their geo info

Foursquare Analysis 1/2

- **981 Shops** have been found in London Area thanks to Foursquare.
- Three franchises have a number of shops >30: they have the **21.7%** of total market.
- A chart featuring the retailers with more than 3 shops in London is shown on the right.

	Area_name	Venue	Venue Latitude	Venue Longitude	Venue Category
0	City of London	WA Cafe	51.51101	-0.12661	Café
1	City of London	Monmouth Coffee Company	51.51431	-0.12682	Coffee Shop
2	City of London	Coffee Island	51.51245	-0.12718	Coffee Shop
3	City of London	Lundenwic	51.51282	-0.11834	Coffee Shop
4	City of London	% Arabica	51.51173	-0.12405	Coffee Shop
...	...	...	...	...	...
976	Westminster	Hagen	51.50982	-0.13781	Coffee Shop
977	Westminster	The Roasting	51.49136	-0.13896	Coffee Shop
978	Westminster	Prufrock Coffee	51.51993	-0.10945	Coffee Shop
979	Westminster	L'ETO Caffè	51.51434	-0.13467	Café
980	Westminster	Roasting Plant Coffee	51.50626	-0.08835	Coffee Shop

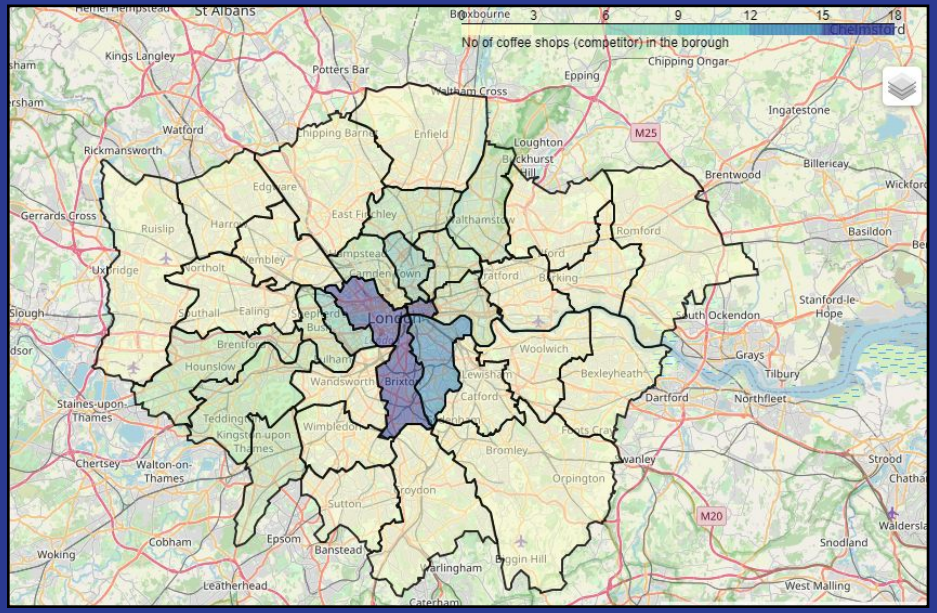
The no of shops per retailer in London and a snapshot of Forsquare Dataset

Foursquare Analysis 2/2

- If we restrict the analysis to “**competitors**” (i.e. retailers with 3 to 6 shops in London)**, 129 shops can be found.**

- The chart on the right features the competitors shop number per borough.

- **Inner London** areas has a **largest number of shops** in comparison with **Outer London** areas.



The no of shops per retailer in London and a snapshot of Forsquare Dataset

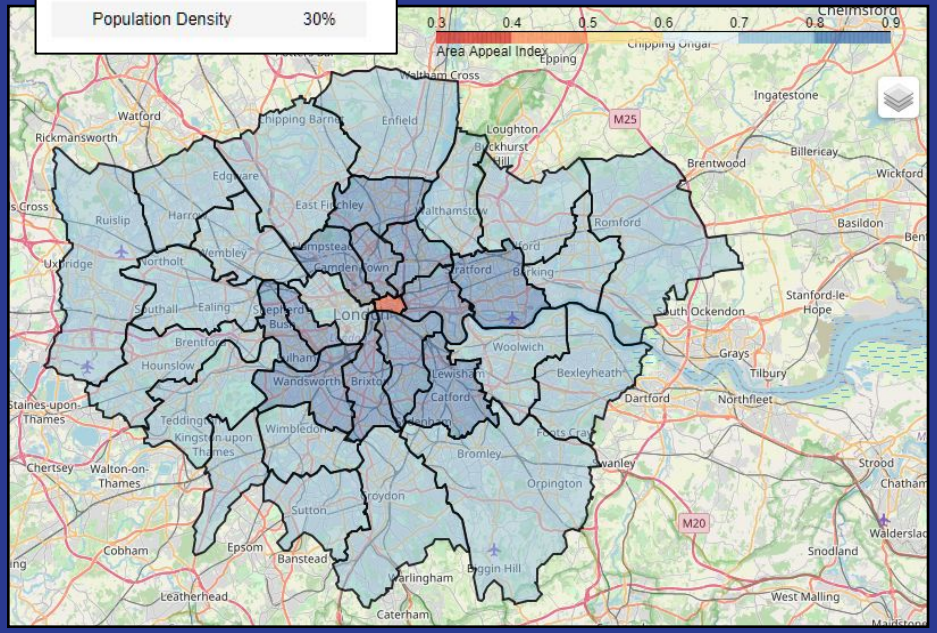
Area Appeal Index Definition

- We are called to define an **Appeal Index** leveraging three basic indexes, namely

  a. ***The density of competitors coffee shops in the area***
  b. ***The business survival index***
  c. ***The population density***

- The three basic indexes are standardized between 0 and 1 before to linearly combine them.
- Combination is made by using the coefficient shown in the table on the right.

FACTORS	WEIGHTS
CoffeeShop Density per Ha	45%
Business Survival Index	25%
Population Density	30%



The Area Appeal Index is represented by an index ranging between 0 and 1 (the higher, the better)

Area Appeal Index Definition

- The same results as we got in the previous slide, it is here shown as a **Pivot Table**.
- A suited borough in each of the Four Areas - one per each **Outer London** Cluster plus the **Inner London** - has been found.
- **Hackney** is the best place for flagship store, while **Brent**, **Merton** and **Waltham Forest** are the hosting candidates for the three shops.

PIVOT TABLE	Cluster No			
Area Name	0	1	2	3
Barking and Dagenham			0.791	
Barnet		0.771		
Bexley			0.761	
Brent		**0.832**		
Bromley			0.740	
Camden	0.887			
City of London	0.262			
Croydon				0.774
Ealing		0.810		
Enfield			0.763	
Greenwich			0.791	
Hackney	**0.950**			
Hammersmith and Fulham	0.886			
Haringey	0.853			
Harrow		0.789		
Havering			0.732	
Hillingdon		0.738		
Hounslow		0.782		
Islington	0.947			
Kensington and Chelsea	0.899			
Kingston upon Thames				0.776
Lambeth	0.843			
Lewisham	0.845			
Merton				**0.805**
Newham	0.852			
Redbridge			0.789	
Richmond upon Thames		0.759		
Southwark	0.859			
Sutton				0.776
Tower Hamlets	0.947			
Waltham Forest			**0.802**	
Wandsworth	0.871			
Westminster	0.817			

The Area Appeal Index as a Pivot Table (the higher, the better)

Discussion

Discussion

- **Inner London Areas** are - generally - more attractive than **Outer London Areas.**
- The **Average Area Appeal Index** for the four main areas is**:**

Area	Average Index	Choosen Borough
Inner London	*0,837*	*Hackney*
West Outer London	*0,771*	*Waltham Forest*
North and East Outer London	*0,783*	*Brent*
South Outer London	*0,783*	*Merton*

- The strong point in **Hackney** is about Business Survival Index, with mid-high density of competitor shops and high population density: particular mention goes to the Business Survival Index, showing a very good business resilience in that area.
- **Waltham Forest** wins in the West Area of Outer London, thanks to a pretty low density of competitor shops paired with good Business Resilience, but, a special mention goes to Population Density, which, despite this index is generally small in comparison with same index in Cluster #0, it is sharply higher in **Waltham Forest** in comparison with other boroughs in this area.
- **Brent** wins in the North and East Area of Outer London, featuring a very low density of competitor shops, a pretty good business resilience and a good population density.
- **Merton** wins in the South Area of Outer London, featuring no competitor shops, a really good business resilience but it is penalized by very low population density.

Conclusion

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- So, just to recap, a detailed analysis of the **Greater London Area** has been done, by **collecting some metrics** to have a picture about the **demographic and general economic environment**.

- This information has been merged with on-purpose information regarding coffee shops to draw a **comprehensive description of Greater London Market**: all of these info have concurred in the detection of **four boroughs to open**
  - one flagship in **Hackney**
  - three new standard shops in
    - **Waltham Forest**
    - **Brent**
    - **Merton**