

Heuristic Model for Logistics Allocation using Network Analyst

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Background

Ronildo Silva

- Civil Engineer and Post-Graduate in Geoprocessing, Business Administration, and Statistics with ~10y experience in GeoIntelligence, Market Research and Market Intelligence
- Knowledge in the Retail, Franchising and Door to Door segments

Adriano M. Junqueira

- Director of Geopixel – ESRI Partner and HERE Reseller in Brazil
- Responsible turn-key implementation of the project





O Boticário

- **Brazilian cosmetic company founded in 1977**
- **The largest franchise network in the world in perfumery and cosmetics**
- **Approximately 3.750 stores in Brazil**
- **Almost 500.000 consultants (door-to-door)**
- **More than 10 million consumers in the Loyalty Program**
- **Operation in 8 countries**

GeoIntelligence: where do we use?

- Product Launches
- Competitive Analysis
- Advertising/Media planning
- Client and Market Analysis
- Store Expansion
- POS Location - door to door
- Direct Marketing
- Territory planning
- ...



case study



Case study on POS Location – door to door

- **Our Model POS**
- **Defining the best place**
- **Methodology / Results**
- **Lessons Learned**



Case study on POS Location – door to door

Our Model POS



- Pick up in the POS

- Self-Service

- Delivery from / buy at the POS
- (logistical model)

Case study on POS Location – door to door

Defining the best place

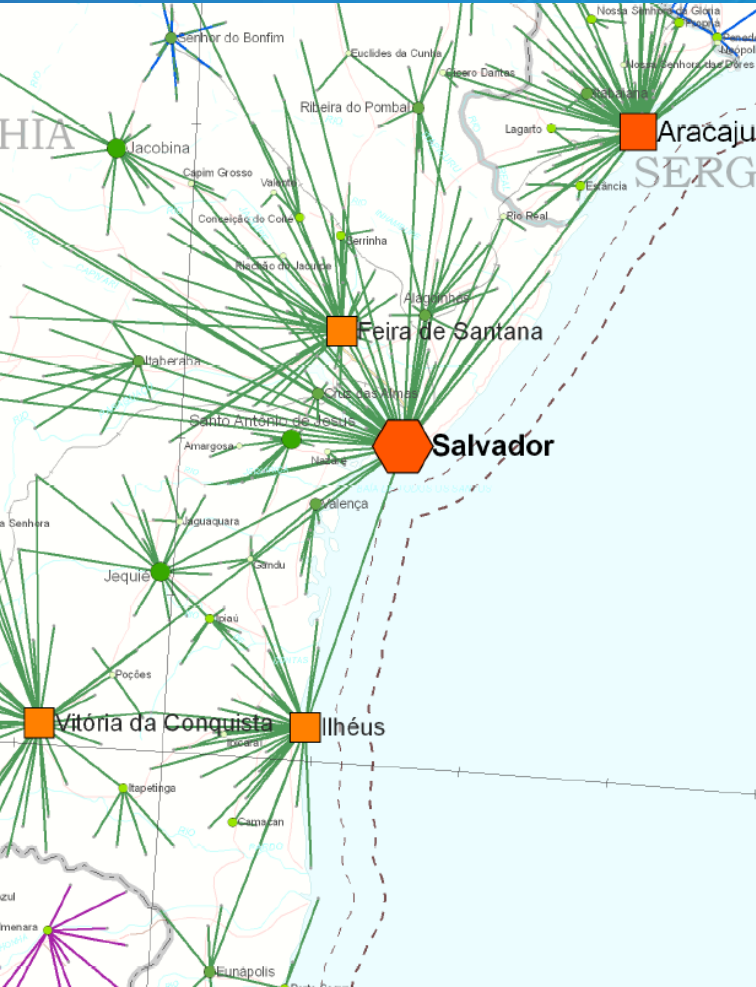
- **Potential POS can be founded in places that might have:**
 - **Density of Consultants**
 - **Easy access to Consultants (street network model)**
 - **Flow of people (HERE POIs and Brazillian Census)**
 - **Potential of new consultants**



Case study on Door to Door POS

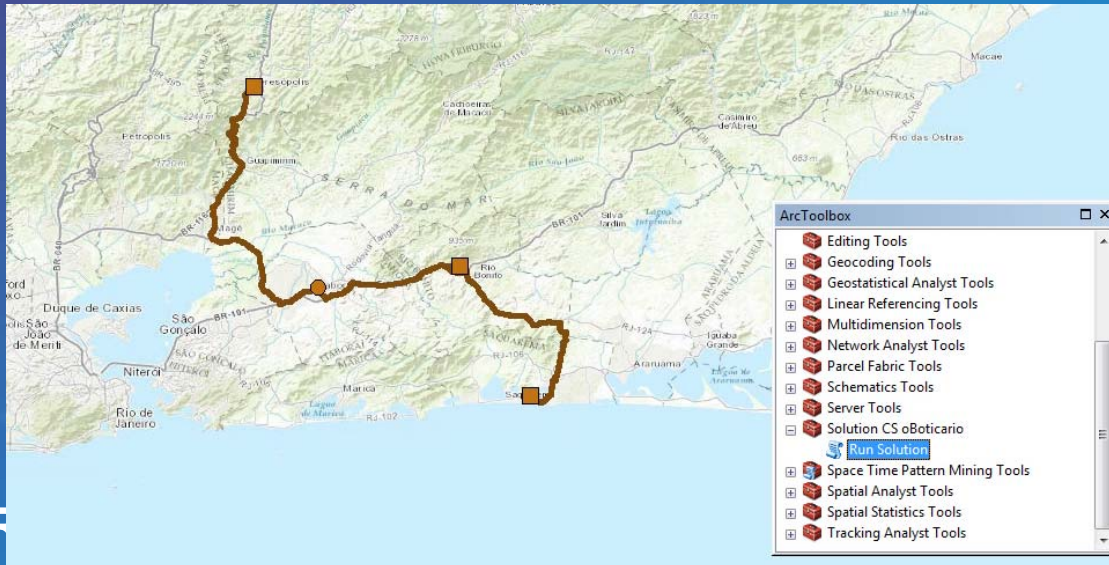
Methodology / Results

- 1. Rank the cities in order of influence
- 2. make a rank by potential consultants
- 3. Grouping the cities that are less than 30 minutes by car distance
- 4. In each group, the candidate city to receive a POS is the most important (Cities and potential consultants).

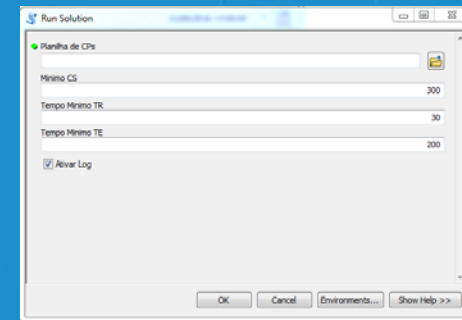


Case study on Door to Door POS

Methodology / Results

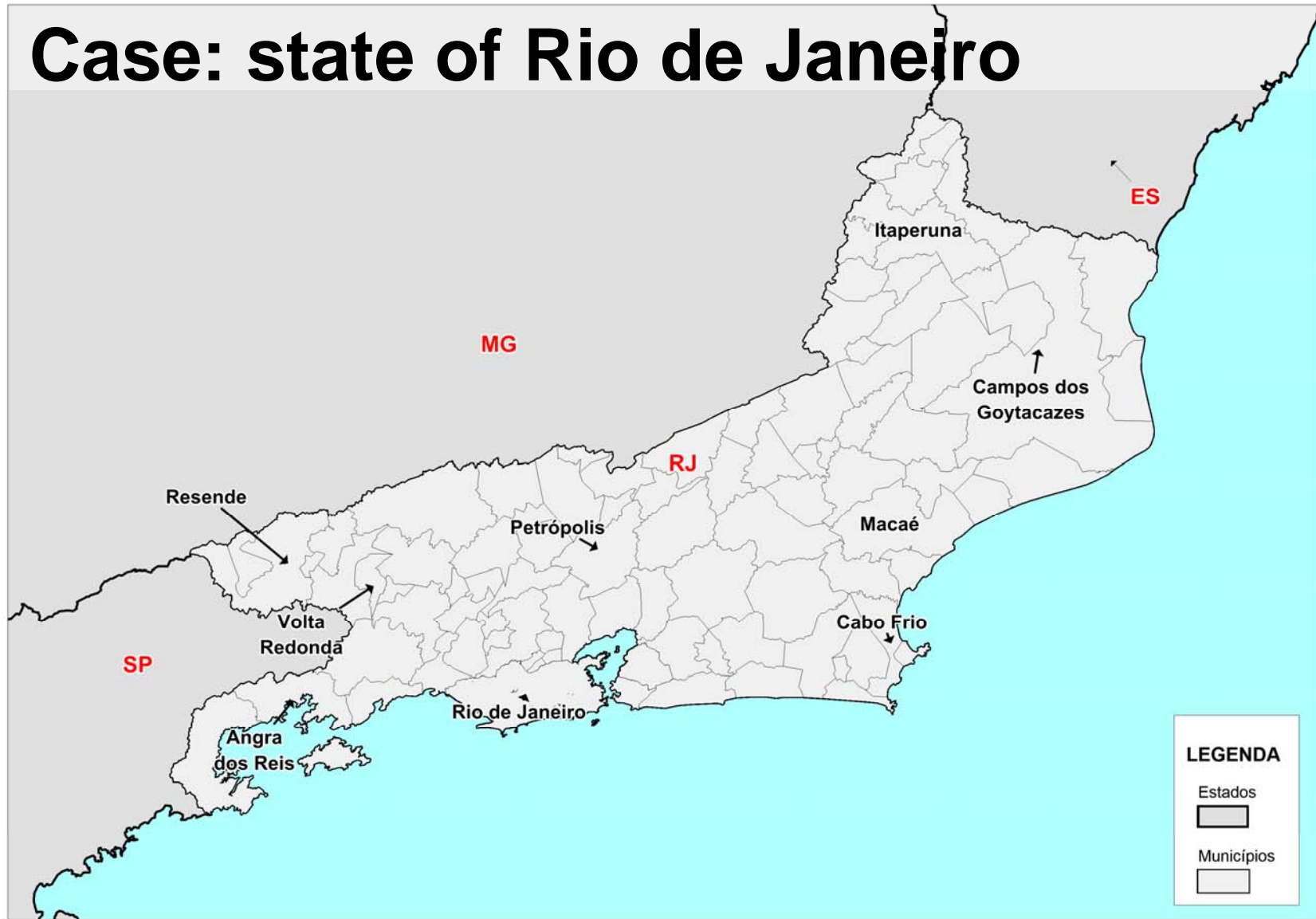


- Solution CS oBoticario.py



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Candidato	Total	Retira	Entrega	MC	ML	CS	Retira Agregado	Entrega Agregado	Atendido	Atendido	PR	% Ret	Geocodigo	
2	Rio de Janeiro	35.629	24.902	10.727	S	S	S	24.902	6.225	Rio de Janeiro	Rio de Janeiro	18819	0,8	3304557	
3	Campos dos Goytacazes	3.810	1.994	1.816	S	S	S	1.994	498	Campos dos Goytacazes	Campos dos Goytacazes	2492	0,8	3301009	
4	Volta Redonda	1.359	1.359	-	S	N	S	1.359	340	Rio de Janeiro	Rio de Janeiro	811	0,8	3306305	
5	Maricá	723	723	-	S	N	S	723	181	Rio de Janeiro	Rio de Janeiro	904	0,8	3302700	
6	Itaboraí	785	785	-	S	N	S	785	196	Rio de Janeiro	Rio de Janeiro	867	0,8	3301900	
7	Petrópolis	647	647	-	S	N	S	647	162	Rio de Janeiro	Rio de Janeiro	809	0,8	3303906	
8	Mesquita	622	622	-	S	N	S	622	156	Rio de Janeiro	Rio de Janeiro	273	0,8	3302858	
9	Magé	-	-	-	N	N	N	158	39	Rio de Janeiro	Rio de Janeiro	106	0,8	3302502	
10	Angra dos Reis	746	746	-	S	N	S	746	186	Rio de Janeiro	Rio de Janeiro	932	0,8	3300100	
11	Cabo Frio	1.057	1.057	-	S	N	S	1.057	264	Rio de Janeiro	Rio de Janeiro	824	0,8	3300704	
12	Nova Friburgo	552	552	-	S	N	S	552	138	Carmo	Carmo	690	0,8	3303401	
13	Resende	770	770	-	S	N	S	770	193	Rio de Janeiro	Rio de Janeiro	645	0,8	3304201	
14	Teresópolis	481	481	-	S	N	S	481	120	Rio de Janeiro	Rio de Janeiro	601	0,8	3305802	
15	Macaé	321	321	-	S	N	S	321	80	Campos dos Goytacazes	Campos dos Goytacazes	401	0,8	3302403	
16	Itaperuna	-	-	-	N	N	N	161	40	Campos dos Goytacazes	Campos dos Goytacazes	186	0,8	3302205	
17	Araruama	430	430	-	S	N	S	430	107	Rio de Janeiro	Rio de Janeiro	460	0,8	3300209	
18	Três Rios	494	494	-	S	N	S	494	123	Rio de Janeiro	Rio de Janeiro	348	0,8	3306008	

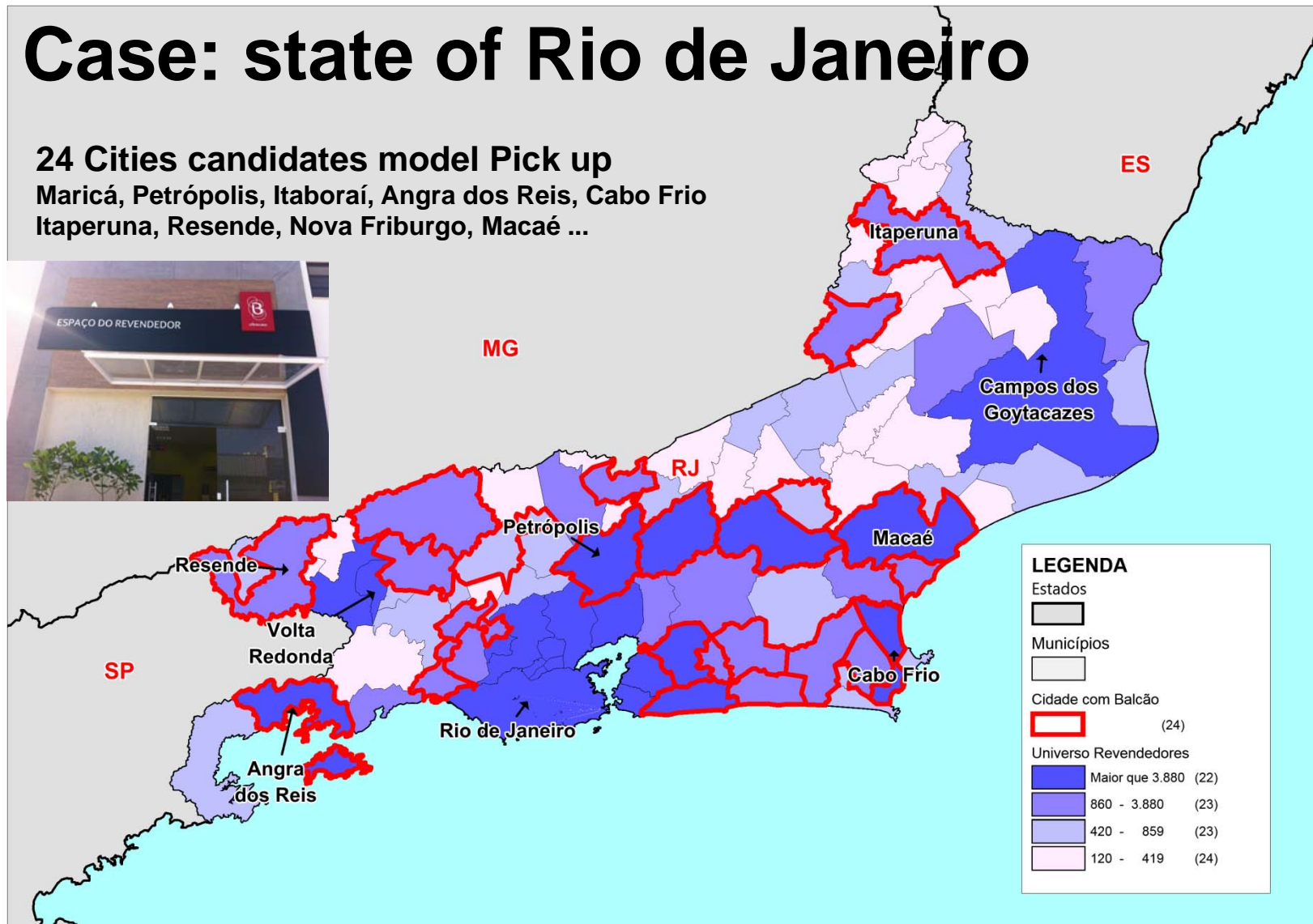
Case: state of Rio de Janeiro



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24 Cities candidates model Pick up

Maricá, Petrópolis, Itaboraí, Angra dos Reis, Cabo Frio
Itaperuna, Resende, Nova Friburgo, Macaé ...

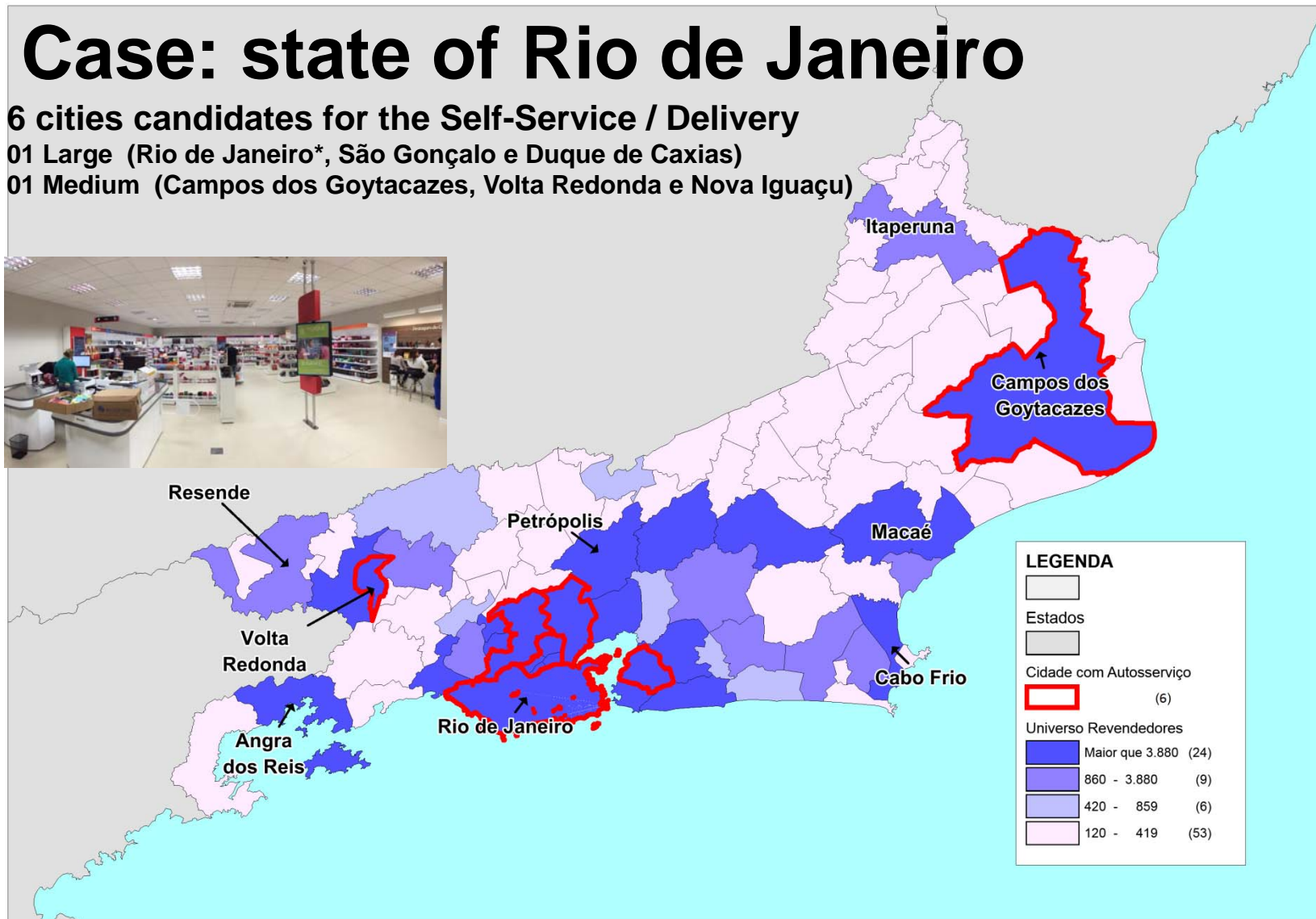


Case: state of Rio de Janeiro

6 cities candidates for the Self-Service / Delivery

01 Large (Rio de Janeiro*, São Gonçalo e Duque de Caxias)

01 Medium (Campos dos Goytacazes, Volta Redonda e Nova Iguaçu)



Lessons Learned

- **Concerning GeoIntelligence, maps are just the tool to better visualize opportunities. You must have good data input to prove your hypothesis or find opportunities;**
- **If you have lack of data available, assumptions work perfectly, but must be carefully designed;**
- **Decision making process is easier and confident when supported by Geo-analytical information;**
- **Field team recommendations is the best insights for new improvements, should be considered!**



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Thank you!

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