CLUSTERING

One of the main concerns of financial institutions today is the trade policy that they must apply with their customers about cash withdrawals at ATMs from Royal Decree-Law 11/2015, of 2 October, which regulates fees cash withdrawals at ATMs.

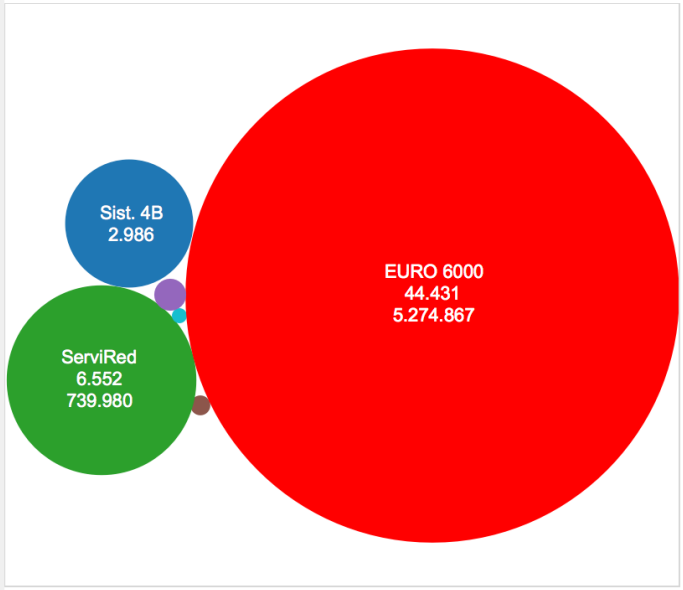
For this reason, we will make a classification of our customers based in 6 attribute:

* F1 = Amount of cash withdrawals made at ATMs of the own entity (On Us)
* F2 = Amount of cash withdrawals at ATMs of an entity different than their entity but belong to the same System (Intra-System)
* F3 = Amount of cash withdrawals at ATMs of an entity outside their System (Inter-System)
* F4 = number of cash withdrawals made at ATMs of the own entity (On Us)
* F5 = number of cash withdrawals of an entity different than theirs but belong to the same System (Intra-System)
* F6 = number of ATM cash withdrawals made in an entity from different System than theirs (Inter-System)

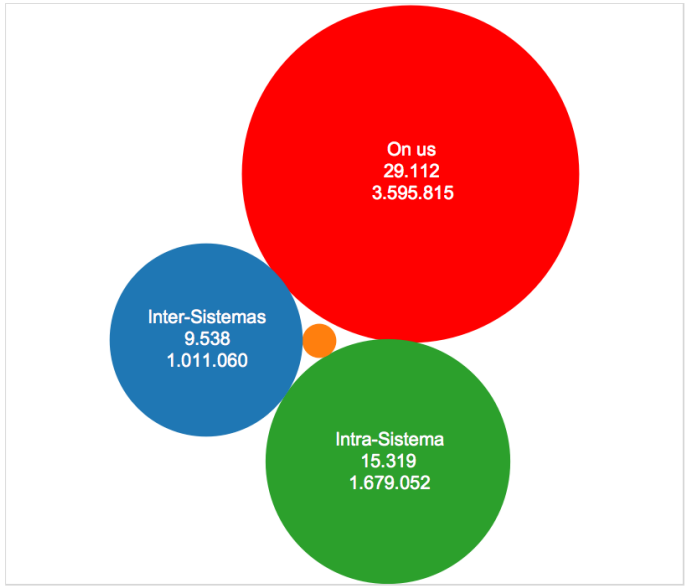
CLUSTERING

How to segment our customers? | **Sample Data Exploration** | Clustering Attributes | Clustering Features | Project Closure

Withdrawal for Acquirer



Withdrawal for Area

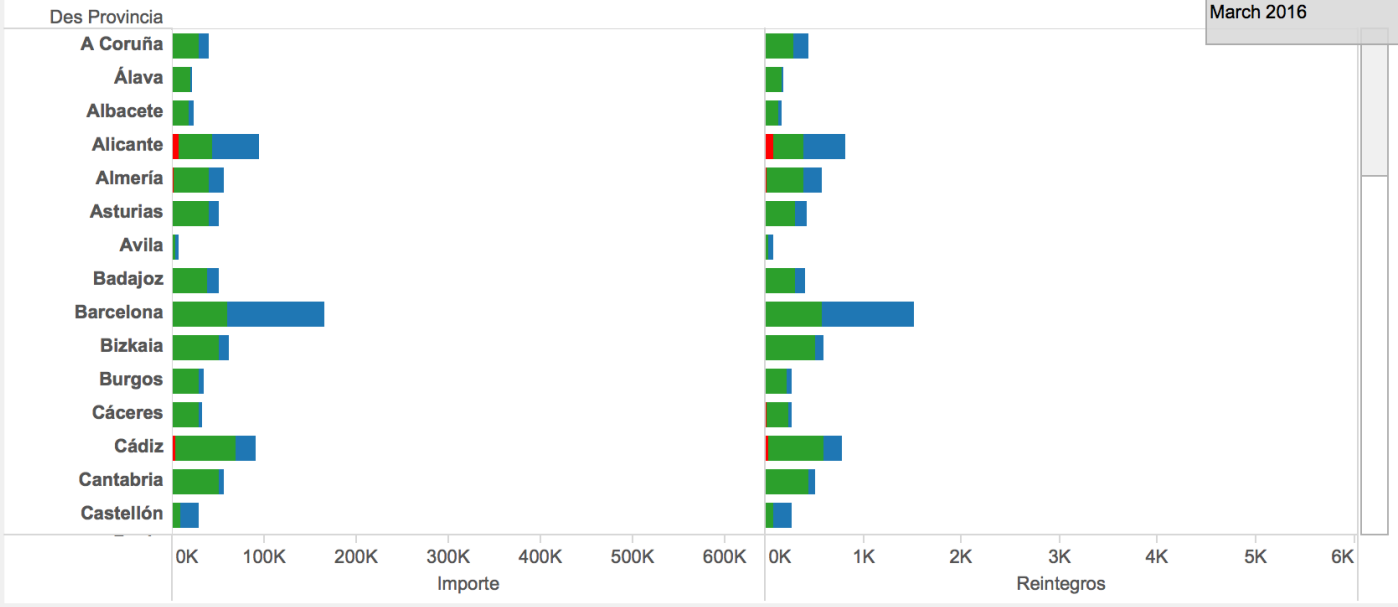


Acquirer Type
- Eufiserv
- EURO 6000
- MC Int.
- ServiRed
- Sist. 4B
- Visa Int.

Area
- Inter-Sistemas
- Intercambio Internacional
- Intra-Sistema
- On us

Withdrawal for Area and Location

We analyzed a random sample of 50,000 withdrawals at ATMs between January and March 2016



CLUSTERING

How to segment our customers? | Sample Data Exploration | **Clustering Attributes** | Clustering Features | Project Closure

Attributes

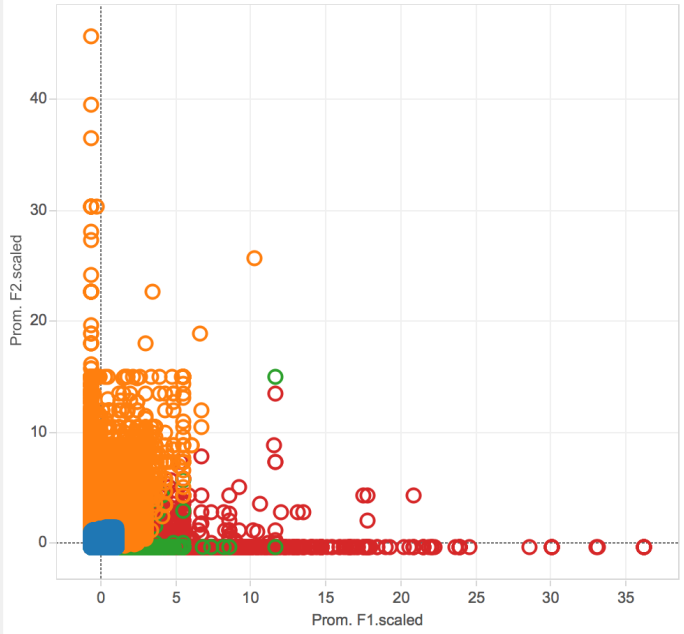
cluster	Avg. F1 (tableau_ cluster.c..	Avg. F2 (tableau_ cluster.c..	Avg. F3 (tableau_ cluster.c..	Avg. F4 (tableau_ cluster.c..	Avg. F5 (tableau_ cluster.c..	Avg. F6 (tableau_ cluster.c..
0	75,1	2,7	3,7	1,9	0,1	0,1
1	46,6	109,4	48,1	0,5	1,7	0,5
2	44,2	15,9	124,9	0,5	0,4	1,6
3	455,7	2,7	7,0	1,9	0,0	0,1

Scaled attributes

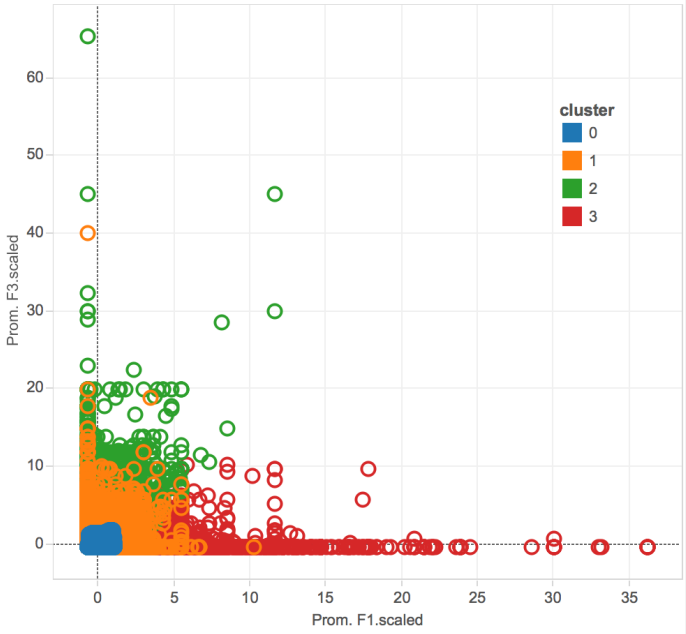
cluster	Avg. F1.scaled	Avg. F2.scaled	Avg. F3.scaled	Avg. F4.scaled	Avg. F5.scaled	Avg. F6.scaled
0	-0,208	-0,275	-0,319	0,789	-0,368	-0,462
1	-0,383	1,360	0,129	-0,866	2,321	0,214
2	-0,398	-0,073	0,904	-0,902	-0,016	2,040
3	2,133	-0,274	-0,286	0,730	-0,413	-0,480

Cluster 0: customers who made withdrawal especially at ATMs of their own entity and not for very high amounts
Cluster 1: customers who withdraw cash mainly at ATMs in entities of the same system, but especially in differents entities than theirs
Cluster 2: customers who withdraw cash especially in entities that do not belong to the same system that their System
Cluster 3: customers who made withdrawals especially at ATMs of the same entity but for very high amounts

On Us VS Intra-System



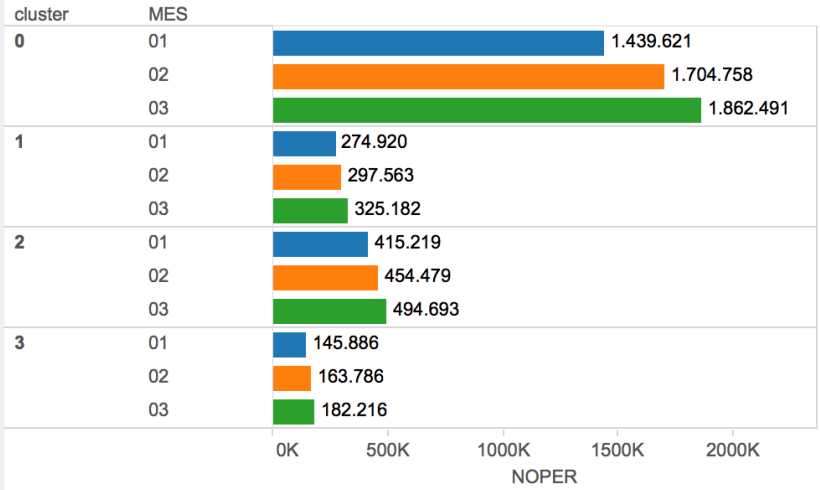
On Us VS Inter-System



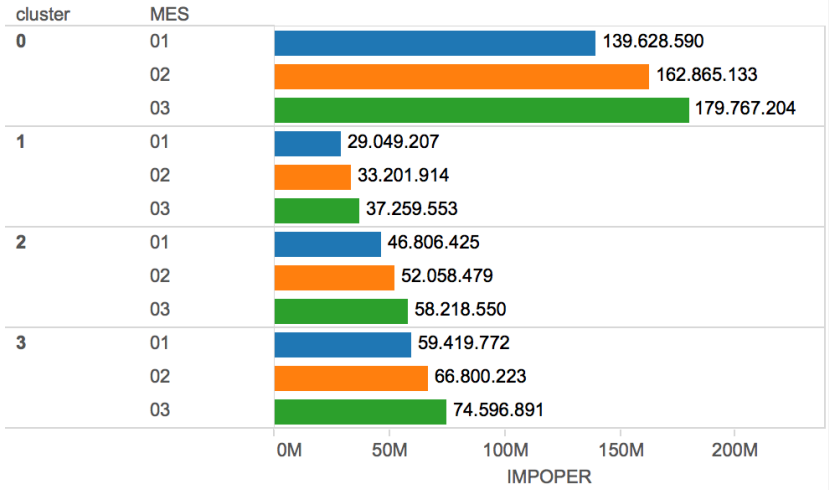
CLUSTERING

How to segment our customers? | Sample Data Exploration | Clustering Attributes | **Clustering Features** | Project Closure

Withdrawal for Cluster and Month



Amount for Cluster and Month

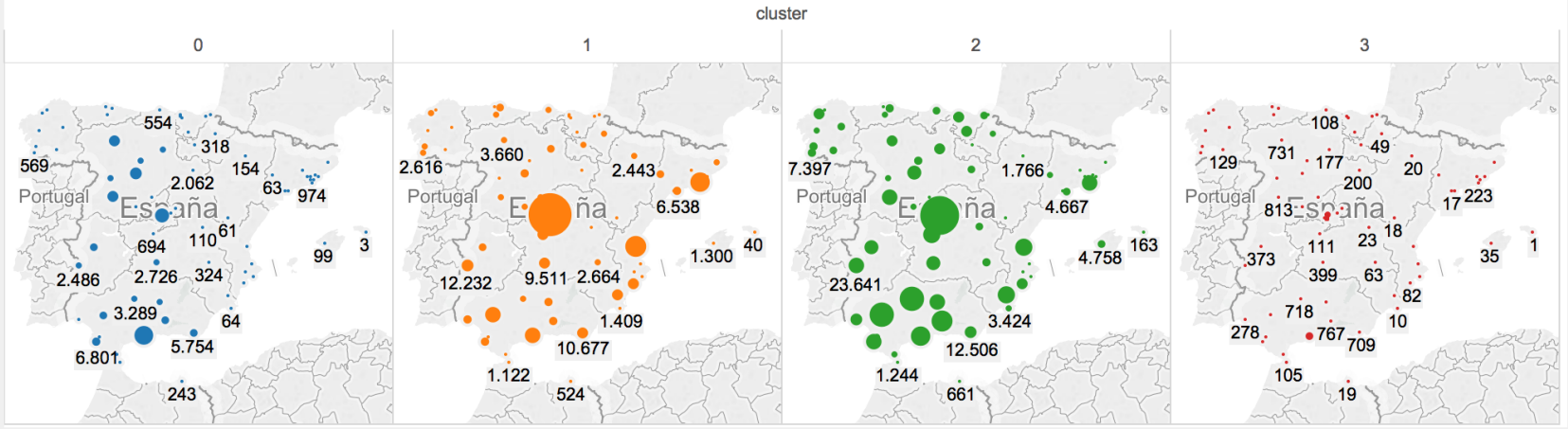


Customers

cluster	Nº customers	Average withdrawals	Average Amount
0	541.509	1	100
1	150.468	1	117
2	189.295	1	128
3	109.124	1	427

Most of our customers belong to the group 0. If you look at the map you can see that this cluster has more presence in Andalusia which coincides with the location of one of our major institutions.

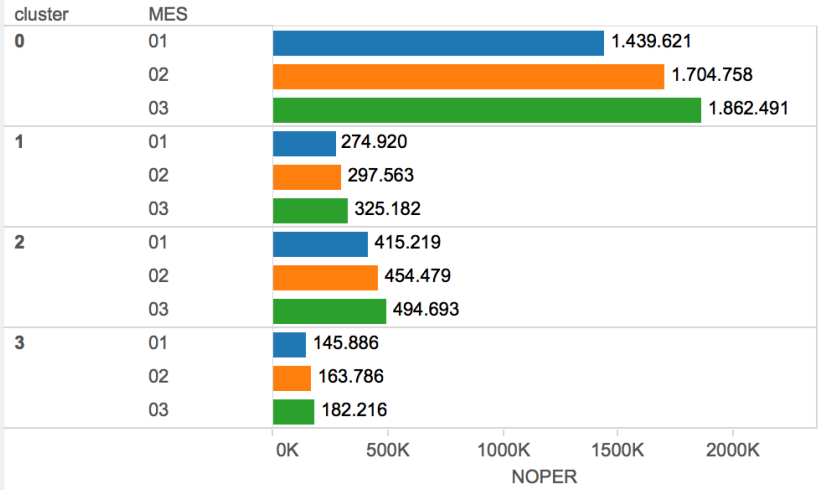
Clusters for City



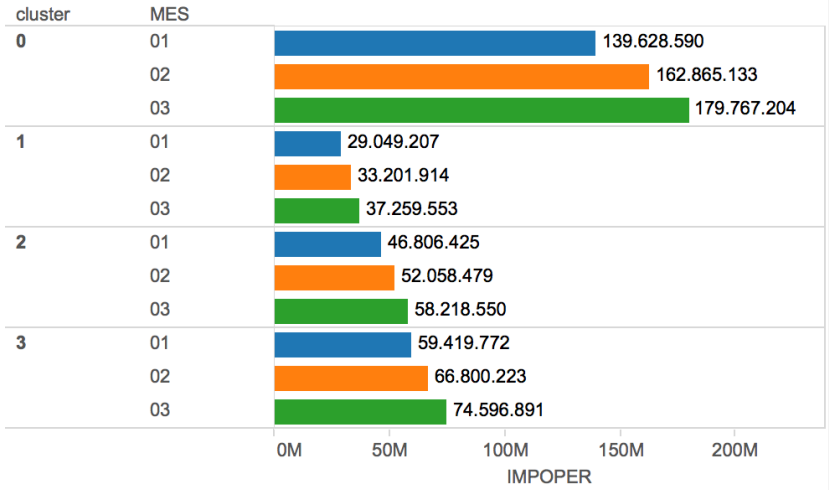
CLUSTERING

How to segment our customers? | Sample Data Exploration | Clustering Attributes | **Clustering Features** | Project Closure

Withdrawal for Cluster and Month

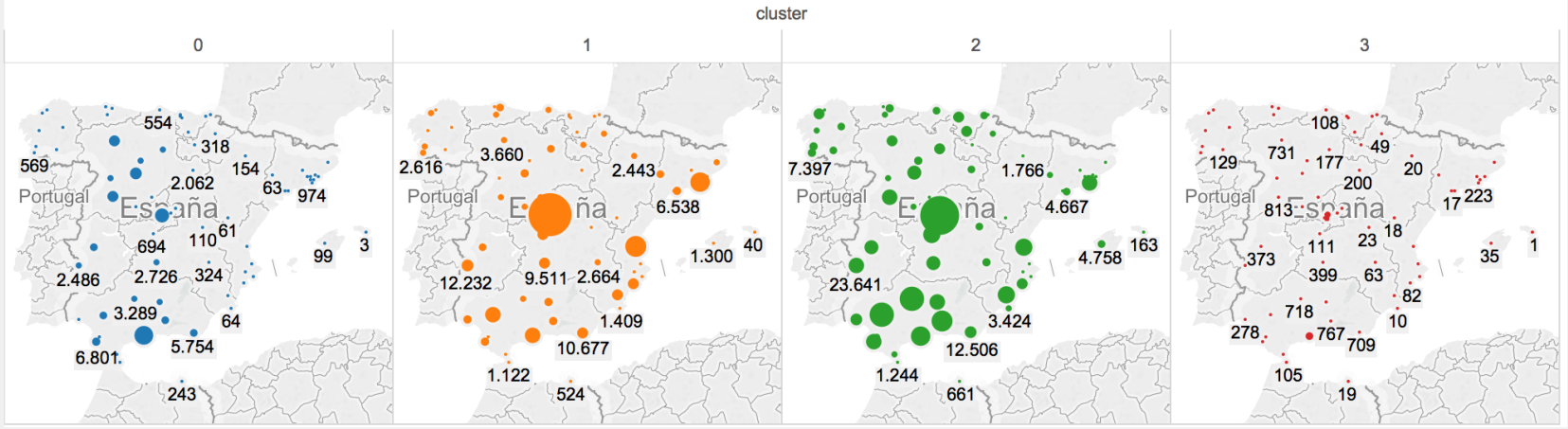


Amount for Cluster and Month



Customers

cluster	Nº customers	Average withdrawals	Average Amount
0	541.509	1	100
1	150.468	1	117
2	189.295	1	128
3	109.124	1	427

Most of our customers belong to the group 0. If you look at the map you can see that this cluster has more presence in Andalusia which coincides with the location of one of our major institutions.

Clusters for City