DSC REACTIVATION CAMPAIGN PLAN 2019

- Business proposal -

Team

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Direct Social Communication (DSC) Overview

Headquarters Belgium

About the company

- Established in the year 1985
- Specialized fundraising agency
- Operates in Belgium, France, Netherlands, Luxembourg
- Raised 13.4% more funds than 2016

Subsidiaries

- Idrima: Deals with the international fundraising operations
- Direct Phone: Telemarketing agency

Key Clients

- Damiaanactie
- Handicap International
- Food Banks
- Mercy Ships
- Flemish Autism Association

Key Fundraising Strategies

- Direct Mailing:
  - Strategy & personalization of mails.
  - Database that results in 2 to 4 better responses than rented commercial addresses

- Digital Fundraising:
  - Analysis of digital trends

- Bequests and major donor strategy
  - Assistance in creating bequests strategies

- Donor Care
  - Handle donor interaction

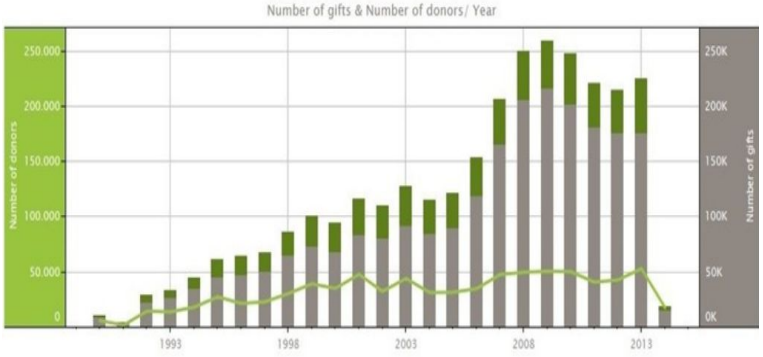
- CRM Platform (Database Management for clients)

DSC aims to increase response rate through a more targeted and predictive approach

Predictive model to help target customers who would make contributions greater than 35 Euros

Business Problem

- Preparing a strategy for a reactivation donor campaign
- Empirically, the pool of donors in Belgium is quite small as compared to those who contribute through gifts
- To optimize campaign costs by accurately targeting this small subset of the Belgian population
- The minimum contribution per donor is expected to be greater than 35 Euros



Proposed plan

- Target the top 50% of donors
- Decrease the initial investment

Analysis Methodology

Descriptive and predictive analysis

DATA CLEANING

DATA EVALUATION AND MODEL BUILDING

RESULTS AND COST-PROFIT ANALYSIS

Data Preparation

- Replacing NAs with zeros
- Integer Coding for categorical variables
- Creation of new variables

Segmentation

- Categorizing the data using kmeans clustering
- Features like gender, nationality, recency of gift donations

Model Building and Validation

- Partitioning the campaign 2013 data into training and validation set
- Stepwise Regression on all 7 models with the training and validation data
- Selecting the best set of features (with the highest AUC for test) for each of the models

Prediction on the test set

- Running all the models on the campaign 2014 data set with their corresponding set of selected features
- Boosted Tree proved to be the best performing model on the test data

Deriving conclusions

- Profile of the potential campaign donors
- Profits that these donors would bring in.

Data preparation

Assumption: The campaign starts on January 1st for both the 2013 and 2014 campaigns

Donor Database

Gender column

- U replaced by NAs for better evaluation

Nationality column

- Donor being French replaced by 1
- If from Netherlands then 0

Gifts Database

Creation of new variables

- Creating buckets for the gifts donated by each donor across the years (1, 3, 5, 10, and 18 years)
- Calculation of the time lapsed since the last contribution
- Calculation of number of contributions made by each donor across all years

Zipcode Analysis

- To classify each donor by three regions in Belgium
- To identify the province the donor resides in

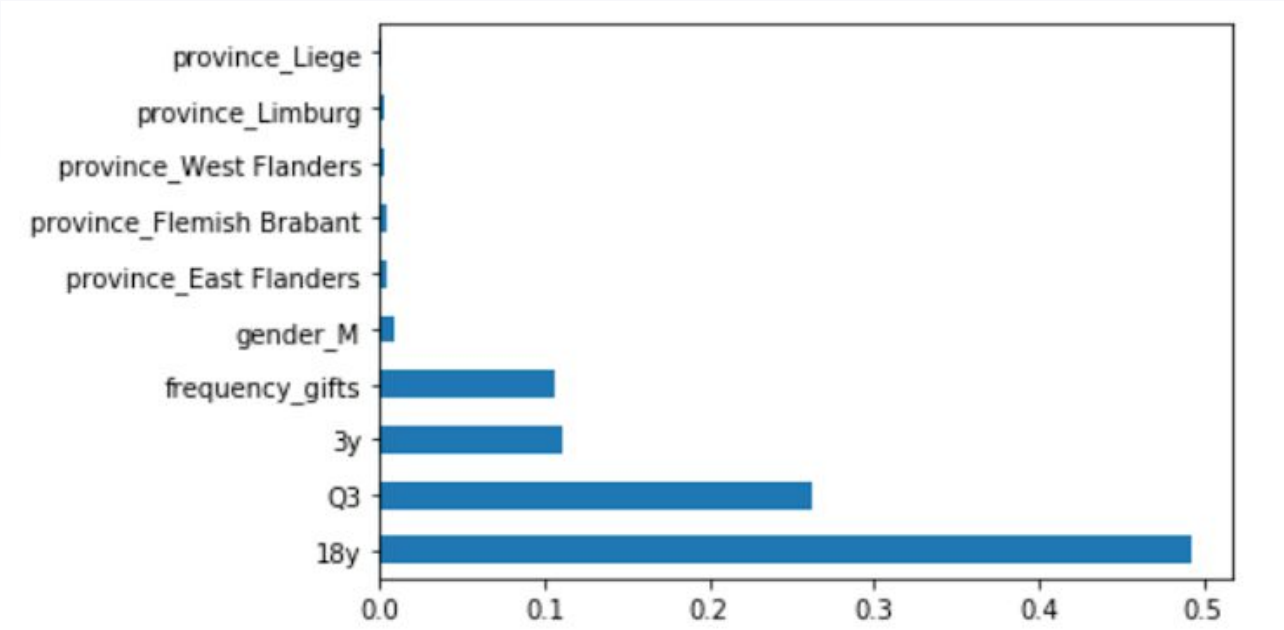
Campaign 2013 Database

Integer Coding to create the target variable

Campaign 2014 Database

Integer Coding to create the target variable

Importance of features with forests of trees



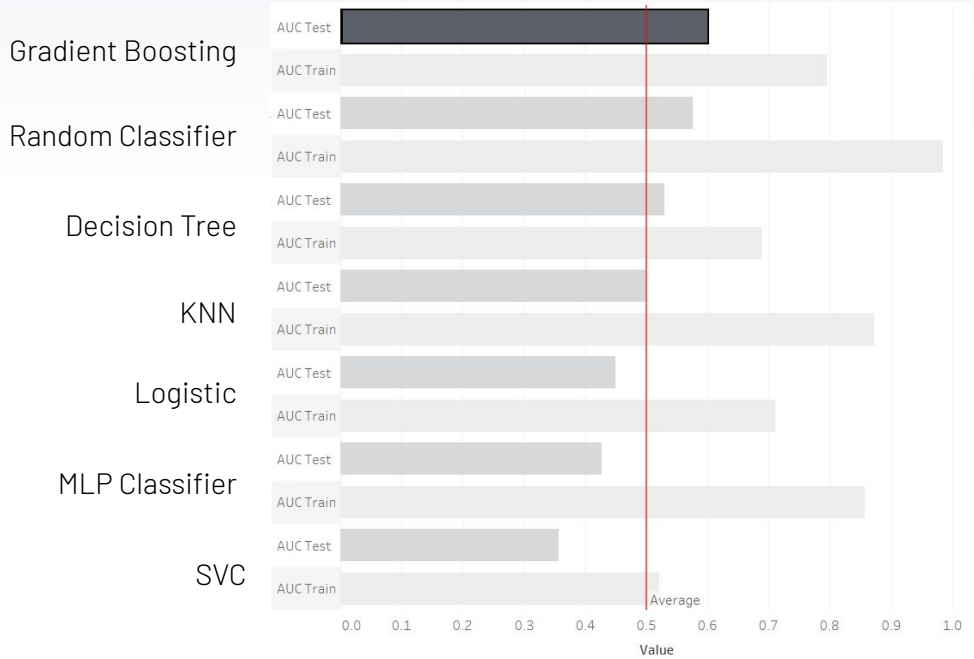
Targeting donors with smaller average contribution results in a higher total amount of donations

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
	Averages	Averages	Averages	Averages	Averages
3Y	15	6	62	28	31
18Y	317	49	11 813	768	82
Q3	71	12	187	172	200
Frequency	7	2	12	9	82
Male	44%	39%	38%	48%	43%
Total	1 438 254	1 423 013	94 507	717 637	222 389

Models AUC

*Selecting features for each individual model using the custom created **stepwise regression** function*

Decision Tree	08
Logistic Regression	07
Random Forest	17
Boosted Tree	19
SVM	18
Neural Network	22
K-Nearest Neighbors	17



Model and features selection

*Running each of the model on the campaign 2014 data to evaluate the **best performing model***

1. Model Comparison

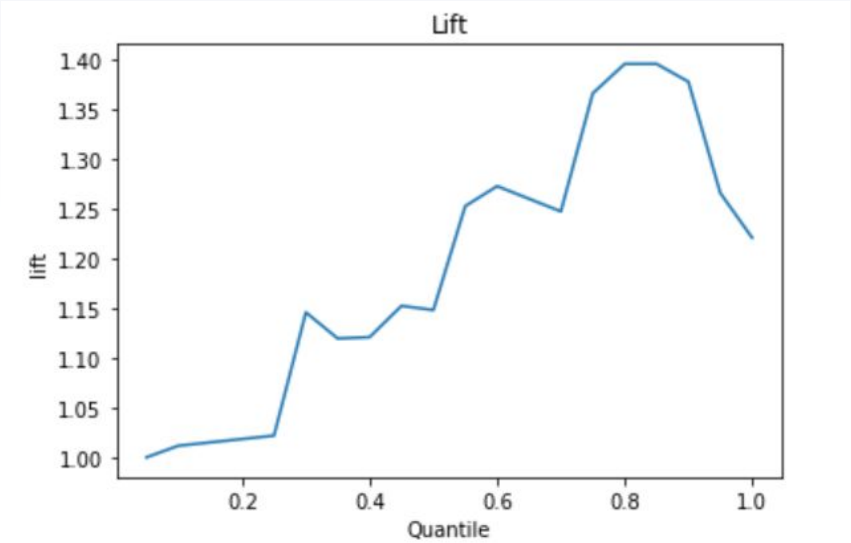
- Random Forest with a AUC of 0.576 and Gradient Boosting with a AUC score of 0.575 where the best models

2. Model Selection

- Random Forest has high difference between AUC train and test so we think that it was overfitting compared to Gradient Boosting.
- Then, Gradient Boosting is a better model for prediction of donors

3. Features Influencing the model

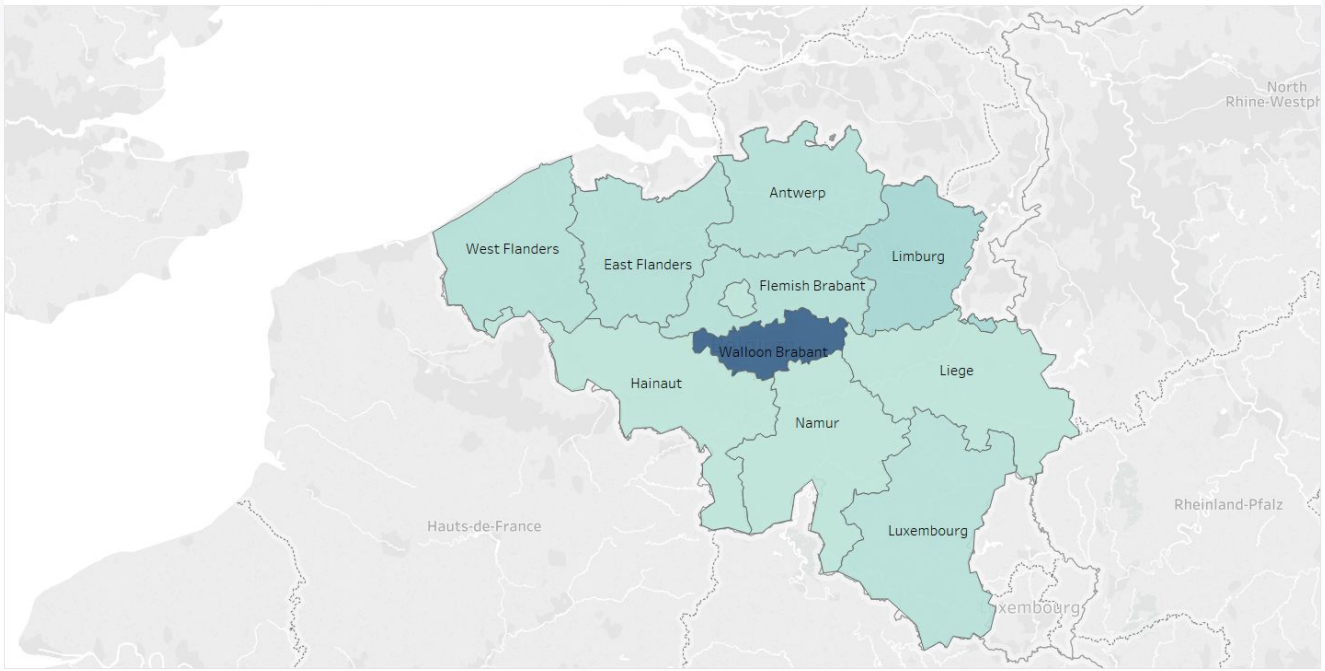
- All four quarters
- Male Donors and Companies
- Nationality
- 1 year and 18 year buckets
- Recency Number
- Frequency gifts
- Donors from the provinces of Walloon Brabant, Namur, Brussels, Liege, Flemish Brabant, Luxembourg, West Flanders, Limburg



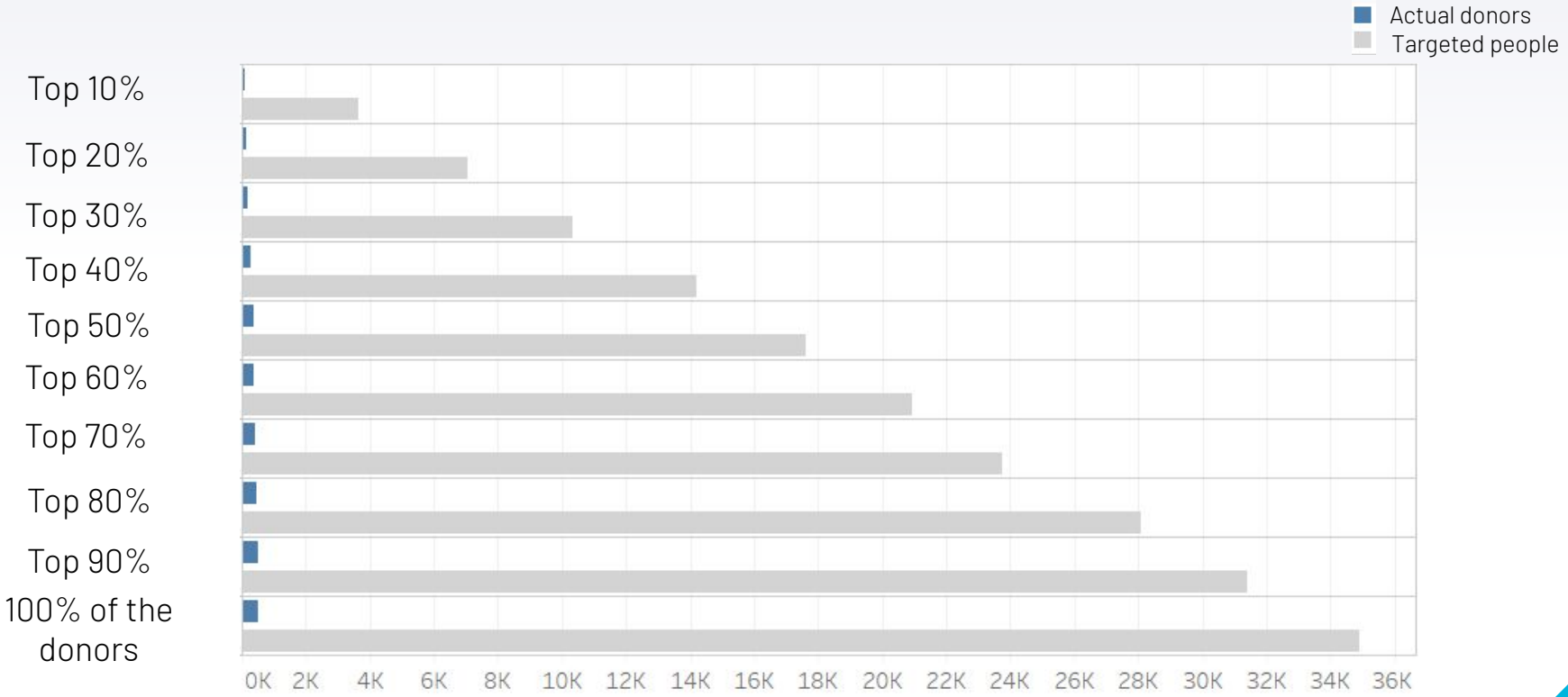
Targeting 10% of the donors with the highest probability will result in highest profits.

	Cluster 1	Cluster 2	Target
Number of donors	4 511	29 548	3 330
Total sum of donation	1 423 013	1 438 254	703 354.3
Q3	30	12	30
18Y	317	49	211
3Y	15	6	22
Frequency	7	2	5
Male	44%	39%	43%

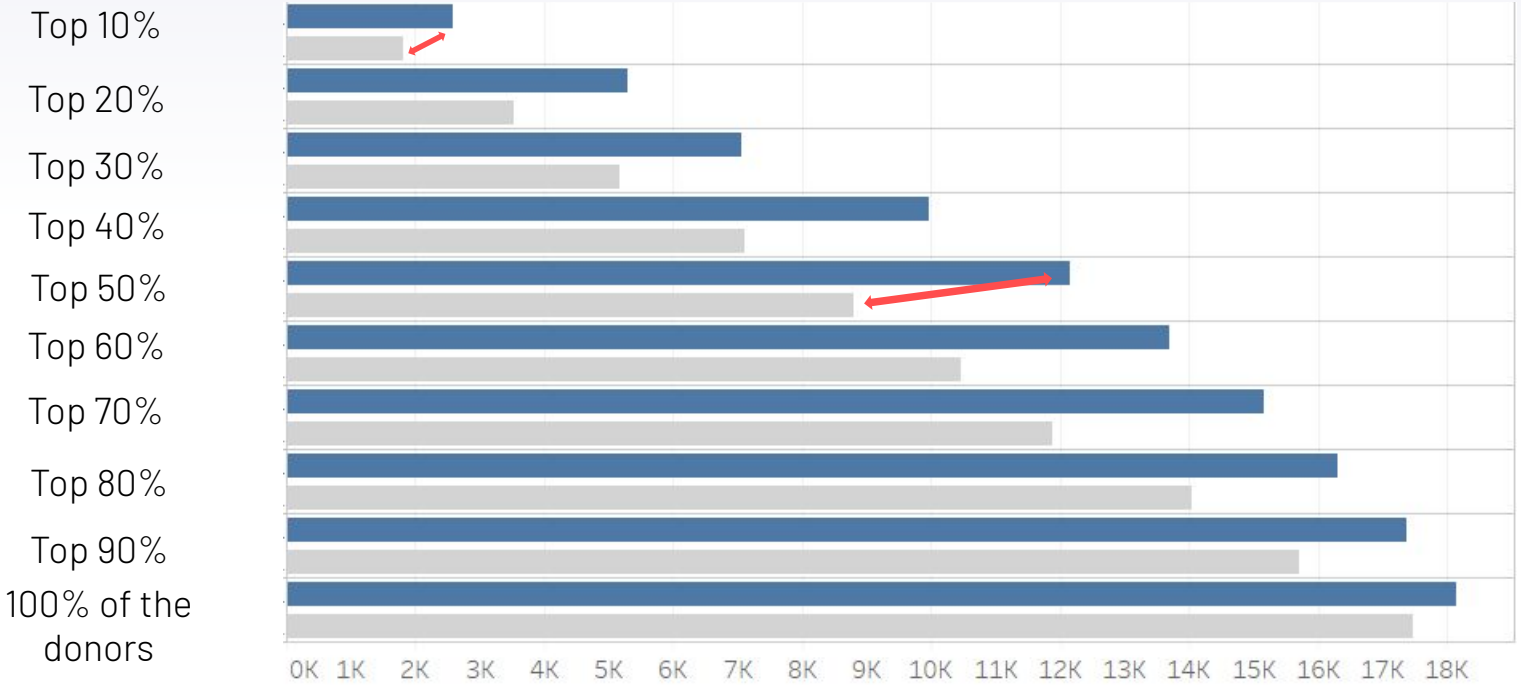
Donors from Wallon Brabant have the highest probability of donating to the campaign



Ranking of donor by probability

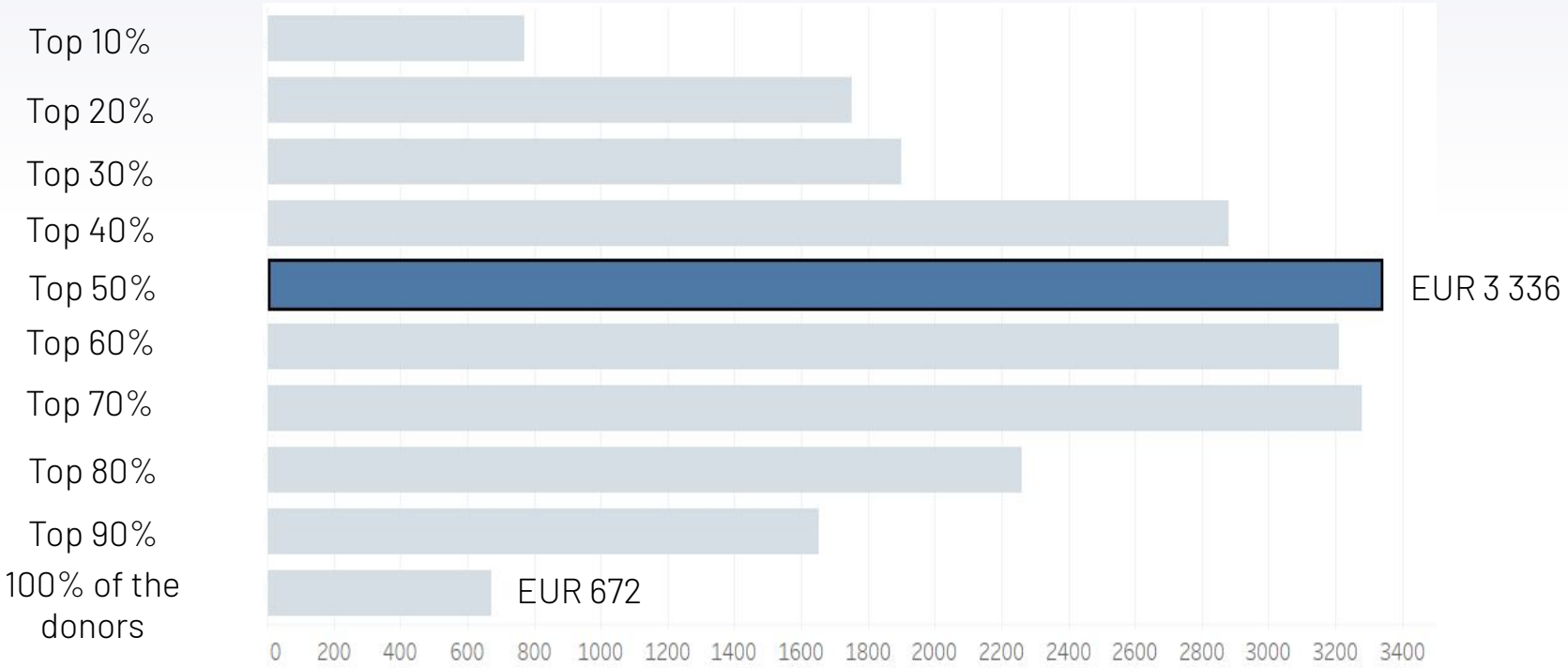


Targeting the top 50% resulted in the highest return on investment



Targeting the top 50% resulted in the highest return on investment

Targeting the top 50% resulted in the highest profit



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Potential profit

- Earn **EUR 3 346** profit vs **EUR 650**
- Get **5 TIMES** more profit with **HALF** of the investment.

3,338 €

Potential profit

THANKS!

Any questions?