



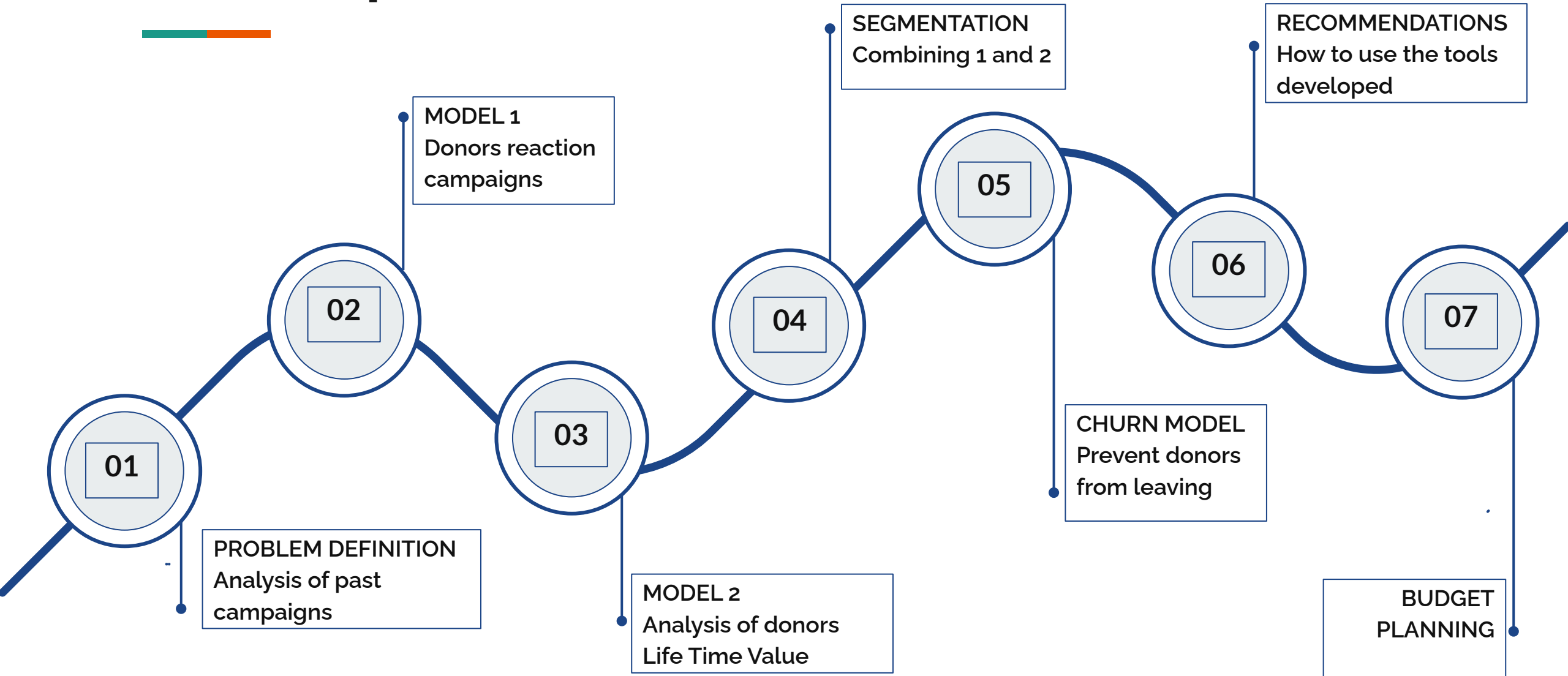
Assignment #3

Yearly Solicitation Plan

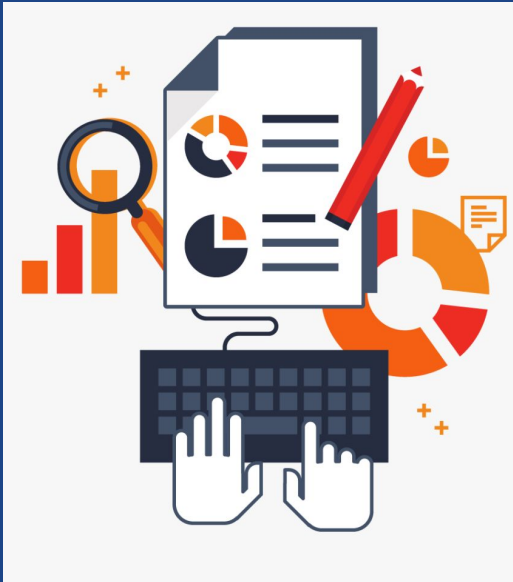
Team 17

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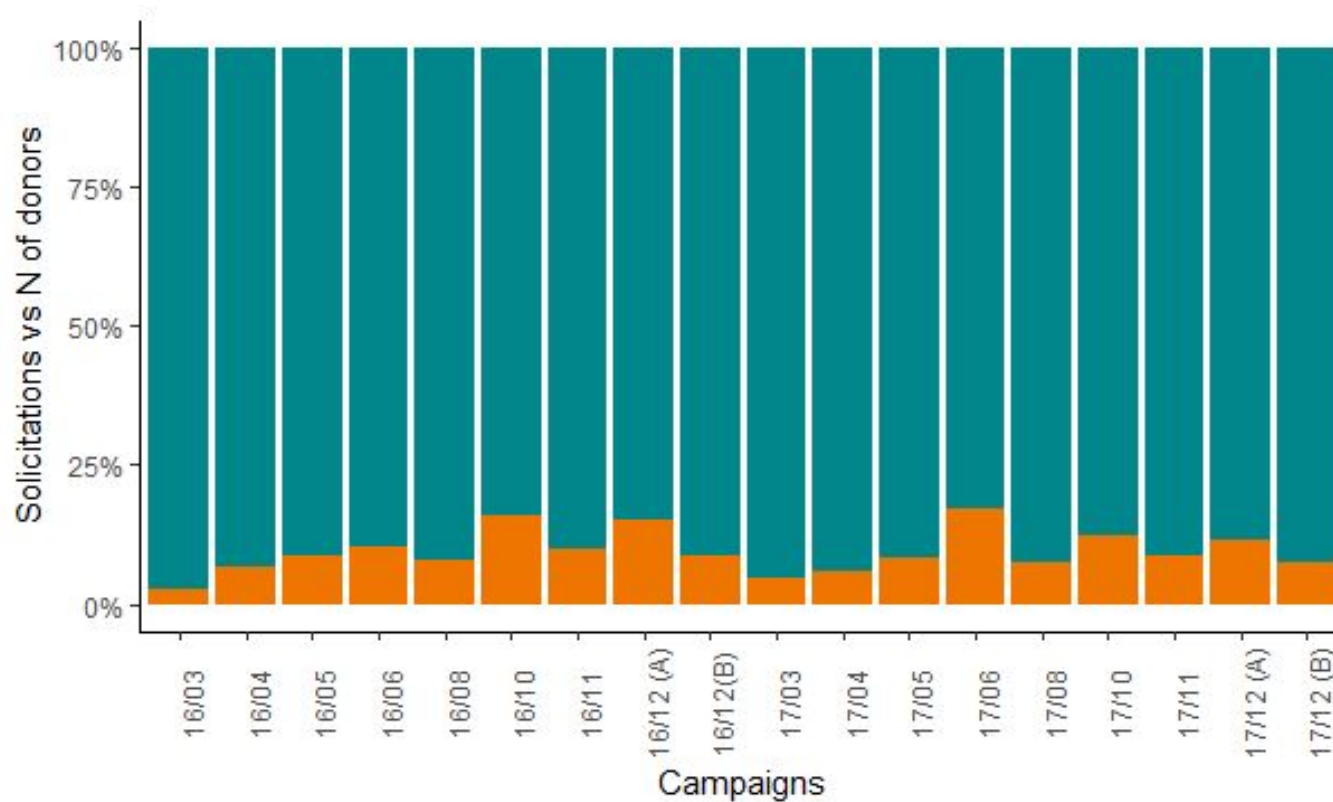
Roadmap



Analysis of past campaigns



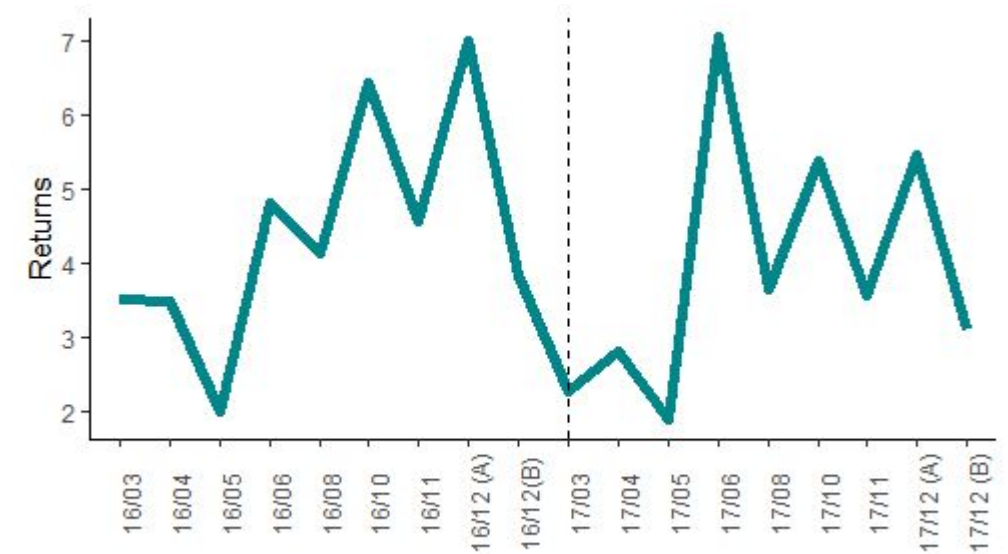
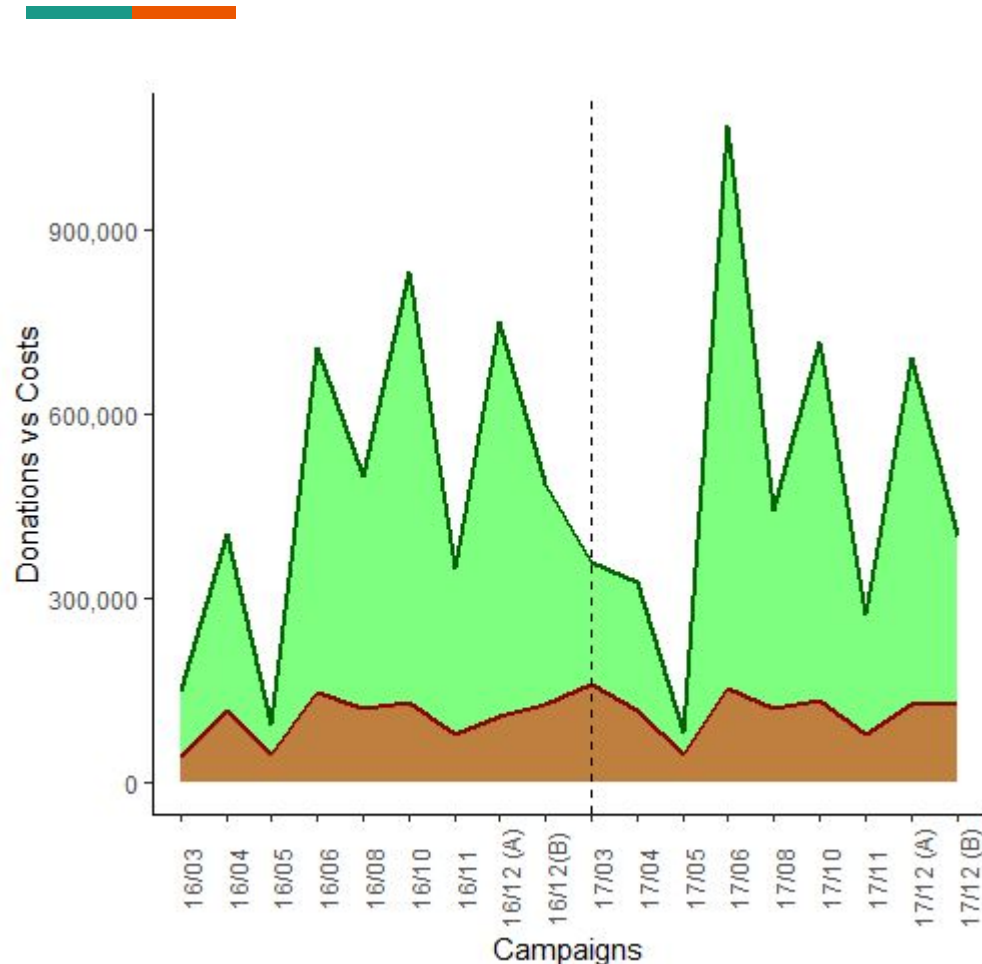
Reach of past campaigns



The graph shows in percentage how many donors donated after having been solicited during the past campaigns.

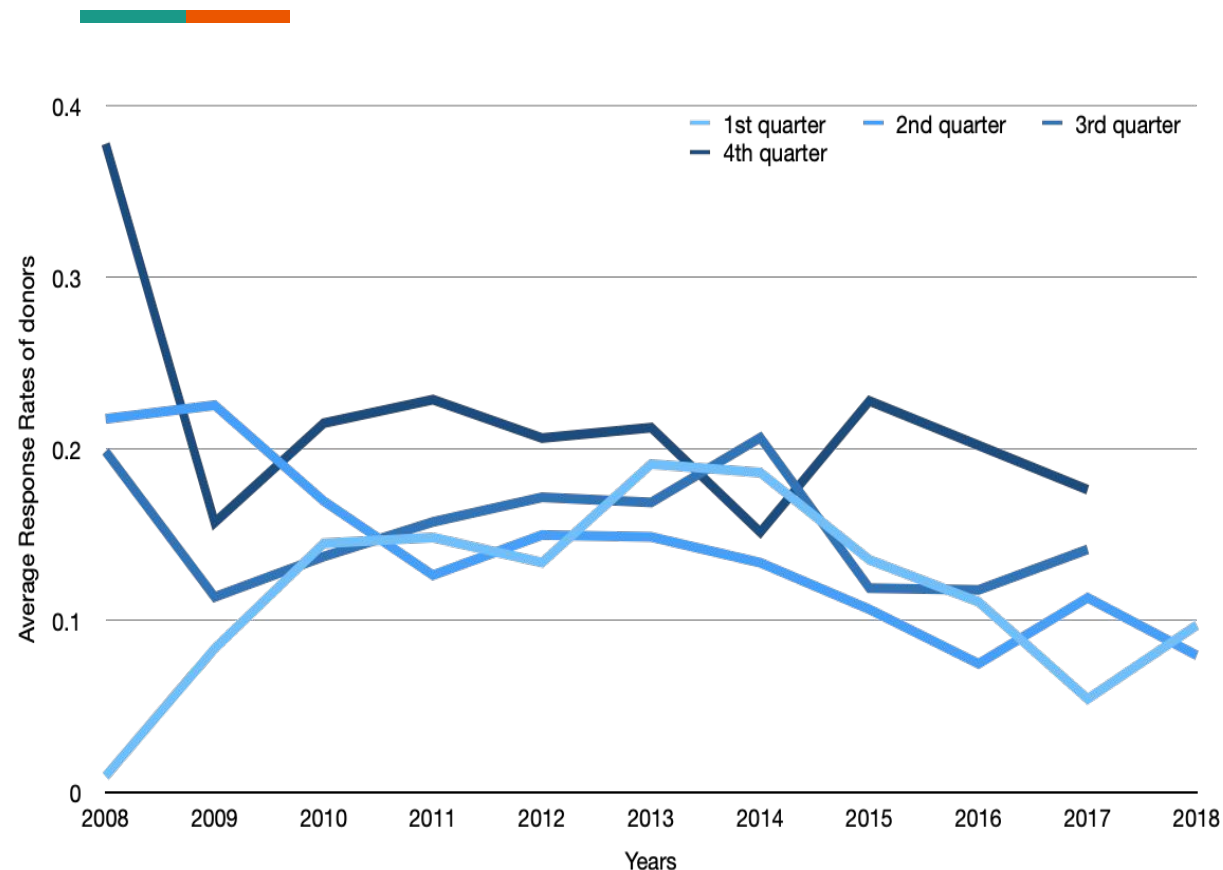
- Past campaigns were in general not efficient, with a maximum percentage of donations being less than 25%
- Most efficient campaigns in 2016 were in October and in the first part of December, while in 2017 were in June and in October

Revenues and cost of past campaigns



- Returns from past campaigns were always positive
- Cost stays almost constant during the year except from May in which in general less money is spend
- Revenues show more seasonality, with peaks generally in June, October and in the first part of December, and with the worst performance in May

Response rate of our campaigns



Average response rate of donors over the years for each quarter

SOLUTION: Modeling campaigns

Quarters	Response Rate
Q1	11.78%
Q2	14.06%
Q3	15.33%
Q4	21.56%

KEY TAKEAWAYS

- Campaign average response rate is low.
- We are spending a large amount of money soliciting people who do not respond
- Campaign performance is not consistent across the year: campaigns held in the 4th quarter perform better

Campaign Modeling

Short term view



Who to solicit? - Short-term view



PLAN OF ACTION: 9 major fundraising campaigns

WHAT WE NEED TO KNOW:

- WHO to solicit
- WHEN to solicit to maximise campaign efficiency

Modelling using
these known



factors as
predictors

WHAT WE KNOW:

- Campaigns similar to each campaign we are launching
- How people reacted in general to campaigns
- Donor's behavioural metrics (recency, frequency, loyalty, avg donation amount, max donation amount...)

Modelling approach



RESPONSE PROBABILITY

Predict the donor probability to respond to the campaign

DONATION AMOUNT

Predict the donation amount the donor will make

EXPECTED DONATION AMOUNT

Combine both models to compute the expected donation amount for each donor

Fit one model for each major fundraising campaign in order to better capture each campaign specifics

Model implications



What all can we estimate:

1. Whom to solicit
2. When to solicit each person (ie, which campaign(s) to use among all campaigns)
3. How many campaigns to target to each person?
4. Budget for each campaign (since we know whom all to solicit)
5. Estimated revenue from each campaign
6. Estimated profits from each campaign

Results from the model

Month	Solicitations made/to be made		Number of donors		Amount obtained/estimated		Profit	
	Avg* of similar campaigns of 2016/17	Estimated for 2019	Avg* of similar campaigns of 2016/17	Estimated for 2019	Avg* in similar campaigns of 2016/17	Estimated for 2019	Avg* of similar campaigns of 2016/17	Estimated for 2019
March	89K	84K	4K	84K	252K	204K	224K	108K
April	107K	80K	7K	80K	364K	383K	333K	290K
May	23K	87K	2K	87K	86K	874K	60K	775K
June	146K	87K	20K	87K	887K	712K	845K	613K
August	113K	87K	9K	87K	470K	523K	437K	424K
October	125K	86K	18K	86K	773K	800K	733K	701K
November	60K	86K	6K	86K	311K	584K	281K	486K
December (A)	108K	87K	14K	87K	720K	854K	683K	755K
December (B)	121K	87K	10K	87K	442K	478K	409K	379K
TOTAL							400.4K	453.1K

INCREASE OF >50k!

*Average over all campaigns in 2016 and 2017

So why can't we stop here?



No new customers considered!!

Since the analysis is done on the contacts that we already have, we do not solicit new people who could potentially be of a higher lifetime value



Not maintaining relationships with donors

If we solicit someone who donates in our year-end campaign only in December, we risk the possibility of him/her forgetting our charity and hence choosing other charities for his year-end donations.

Only short-term benefits are considered.
How to have a long-term view of the analysis?

Customer LTV Analysis

Long term view



Relevance of Customer Lifetime Value (CLV)



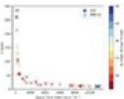
Identify Future top donors.



Identify possibly profitable, but inactive donors.



Minimize spending for unprofitable donors.

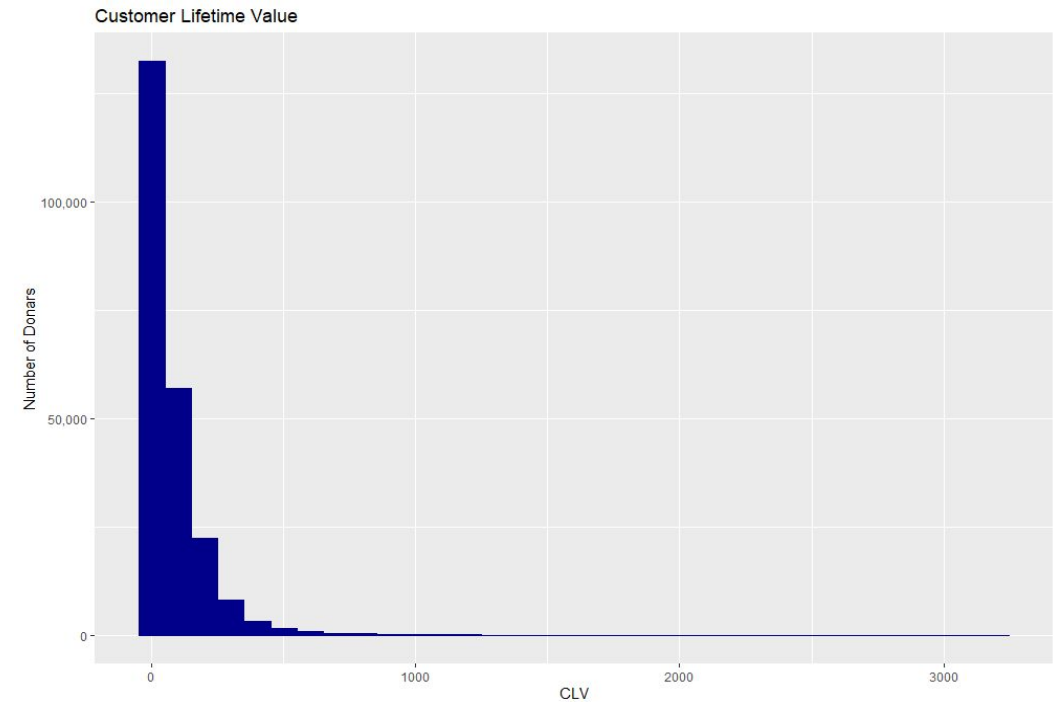


Optimize and benchmark donor development.

CLV - Identify the Top Donors



Customer Lifetime Value	Number of Donors
0-50	137721
50-100	35076
100-500	68301
500-1000	6858
1000-2000	1870
2000 & above	617



Short term objective: Target the customers with CLV less than 500.

Long term objective: Target the customers with CLV more than 500.

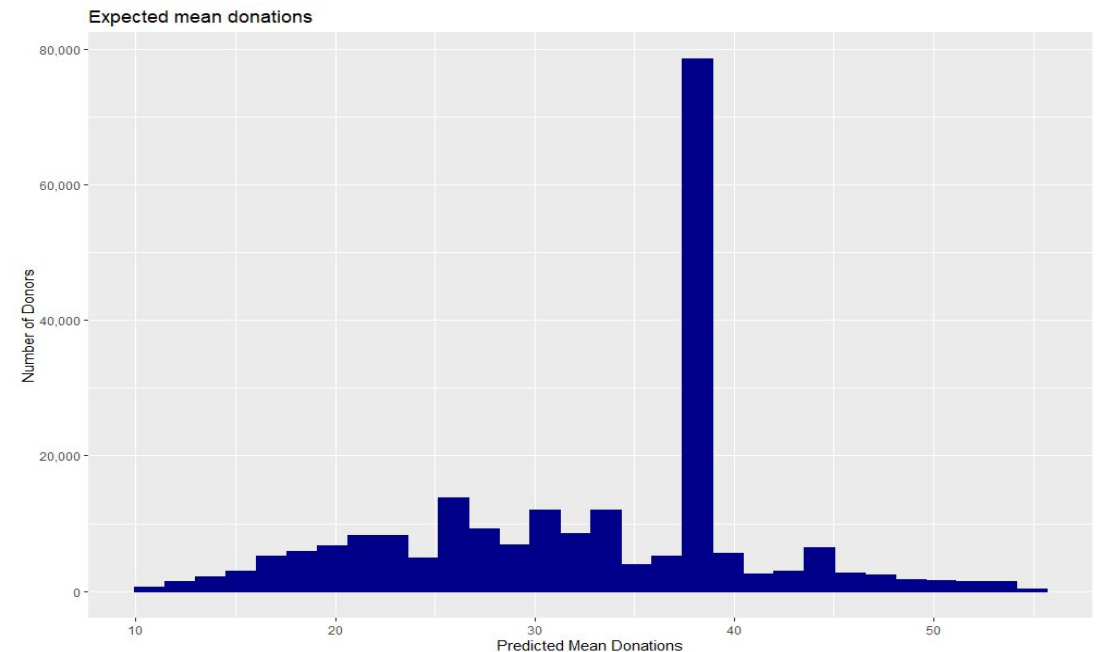
The high-valued customers (2000 and above) get most of the communications and marketing efforts.

CLV - Identify the profitable donors and minimize spending for unprofitable donors

Estimated donations in the next year*



Percentiles	Mean Donations
25th percentile	27.03068151
50% percentile	38.09299515
75% percentile	38.09299515
80% percentile	39.13337579
90th percentile	52.03635137
95th percentile	71.86682069
Maximum Value	28836.96513



This plot shows the distribution of the expected donations. About 80% of our donors have an estimated mean donation below \$39. But some outliers can be a real game changer. The top 10% of the customers should be targeted for the all the campaigns whereas the bottom 50% can be targeted only when the campaign size is huge.

**This is estimated using Pareto NBD Model*

Segmentation

A combination between short term and long term view



Key points



01

Based on both long and short term focused analysis

- k-mean segmentation using variables predicted by the donors life-time value model
- Analysis of each cluster reaction to campaigns

02

Number of segments optimized for managerial use

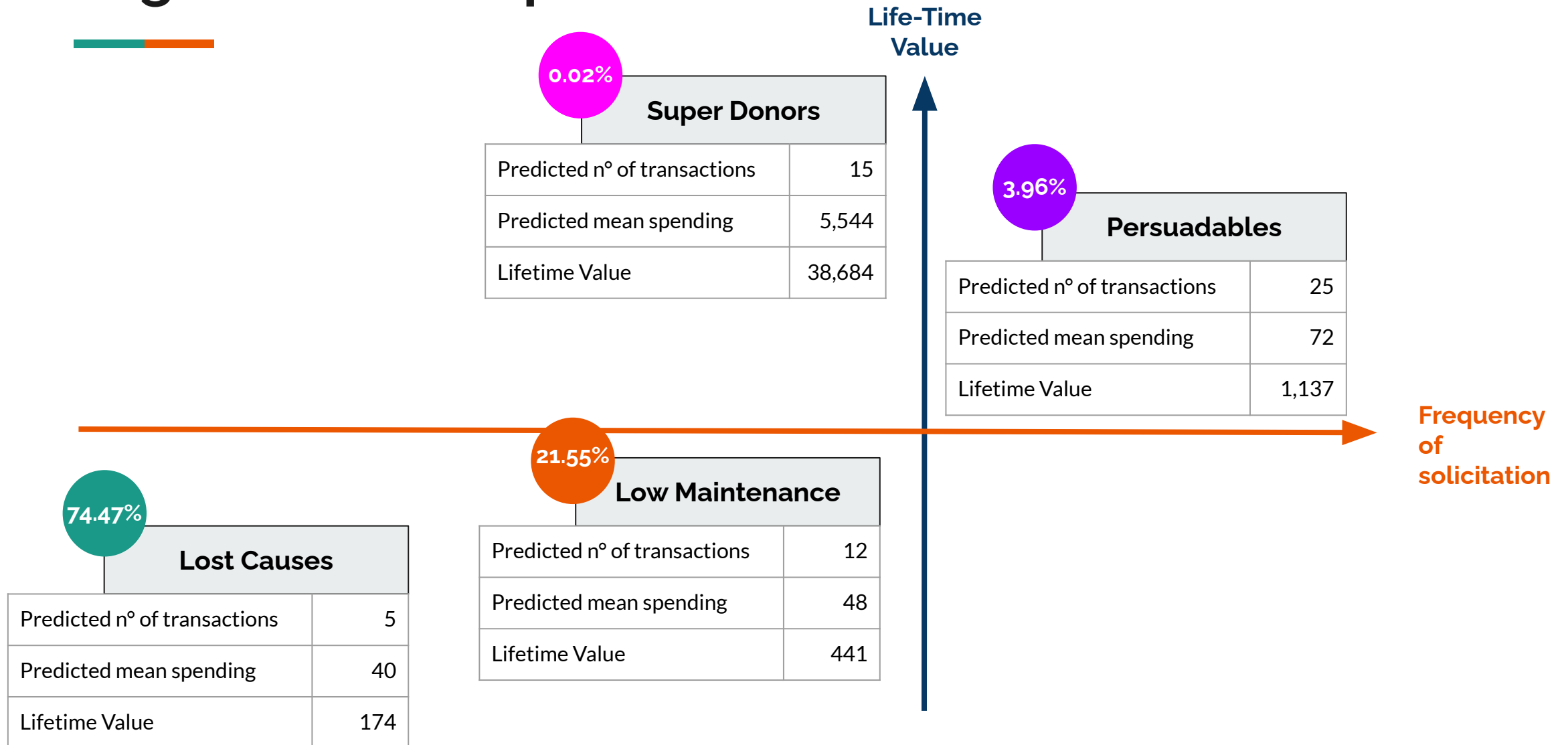
- The number of segments was picked (a priori) after different trials
- The decision was taken based on the best identifiability of clusters and differentiation in reactions

03

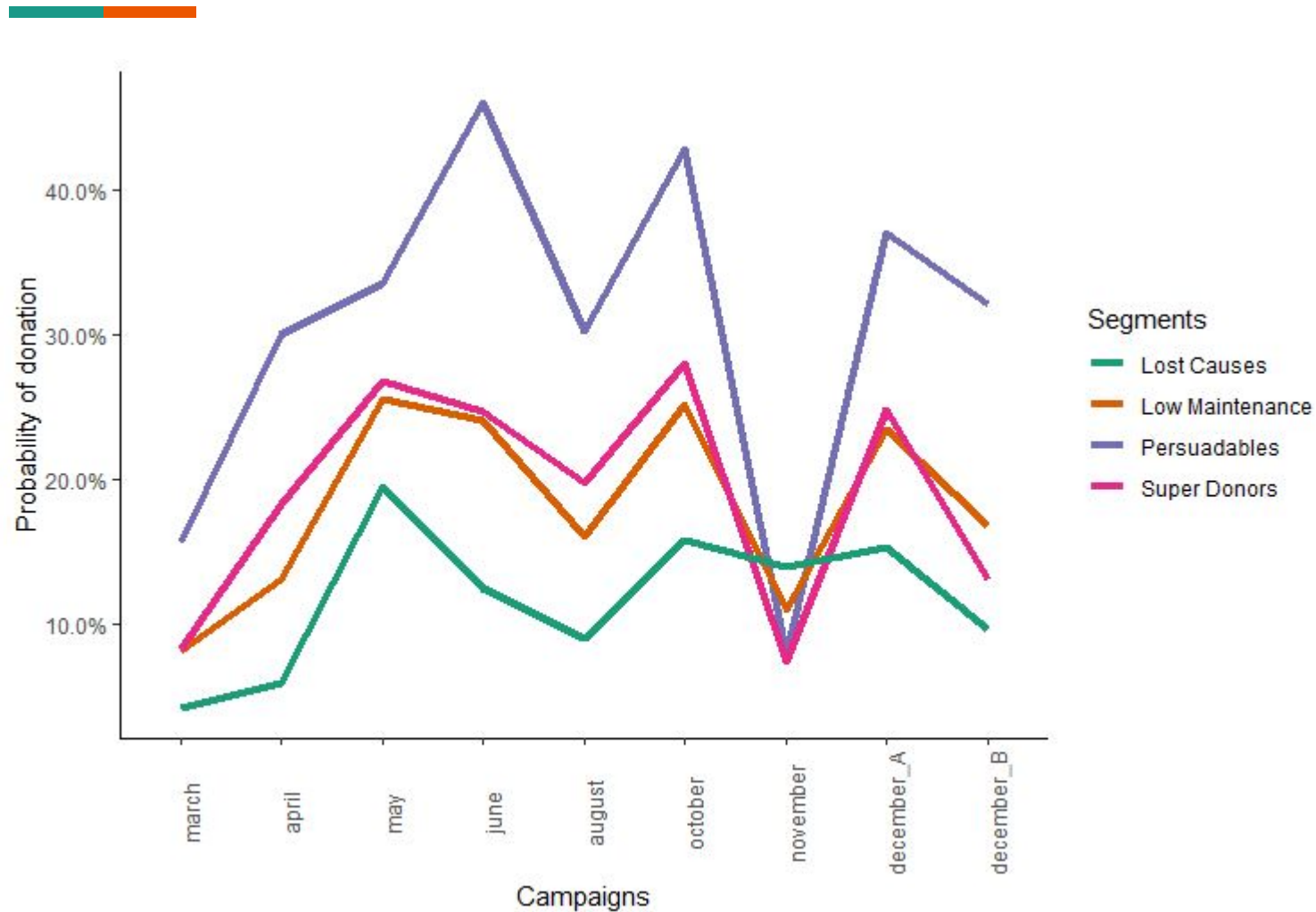
4 Segments identified

- Super Donors
- Low Maintenance
- Persuadables
- Lost Causes

Segments description



Reaction to campaigns by segments



- **Persuadables** can be solicited almost every month except in August and November
- **Low Maintenance** can be solicited less often, preferably in May or June and in October or beginning of December semester
- **Super Donors** → react better in May, October and December
- **Lost Causes** are less responsive to campaigns than other segments, there's an improvement in May

November is the worst month to solicit any segment

Churn Model

Understand when to solicit donors



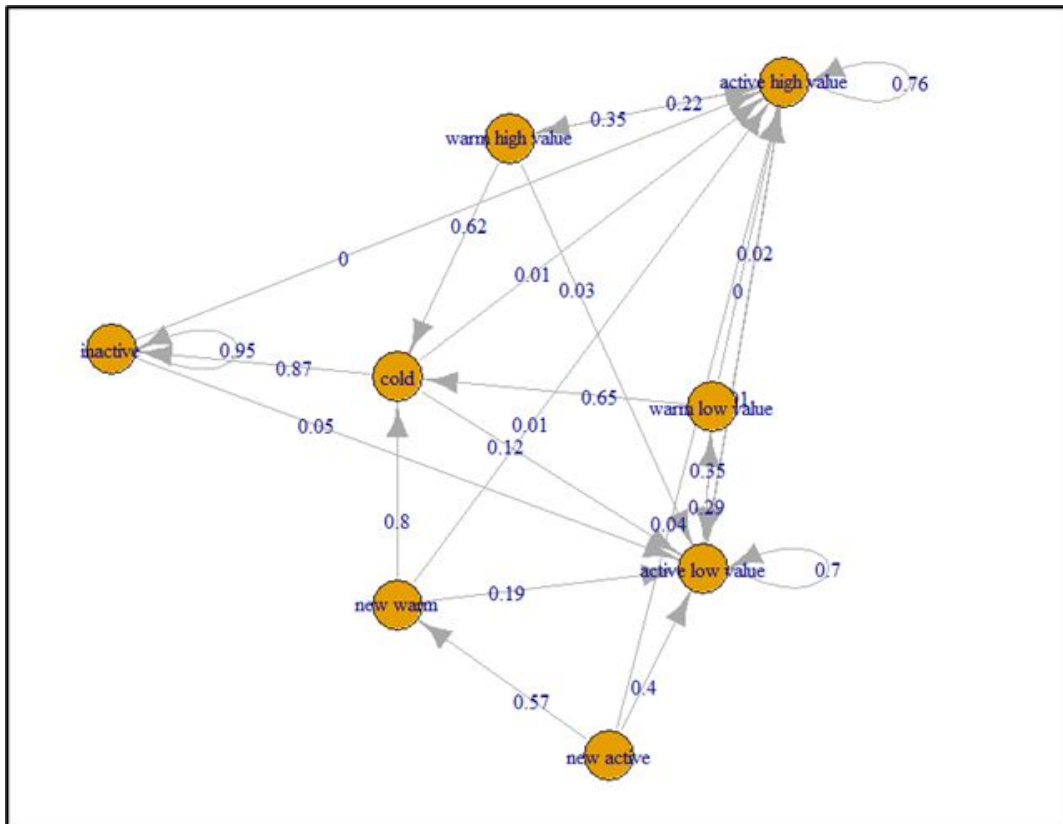
Identifying Churners*



- *Customers once active that are now/turning inactive .*
- *The following segments indicates possible churning*
- *Signalling deeper research into these segments to try to retain these donors before they churn.*

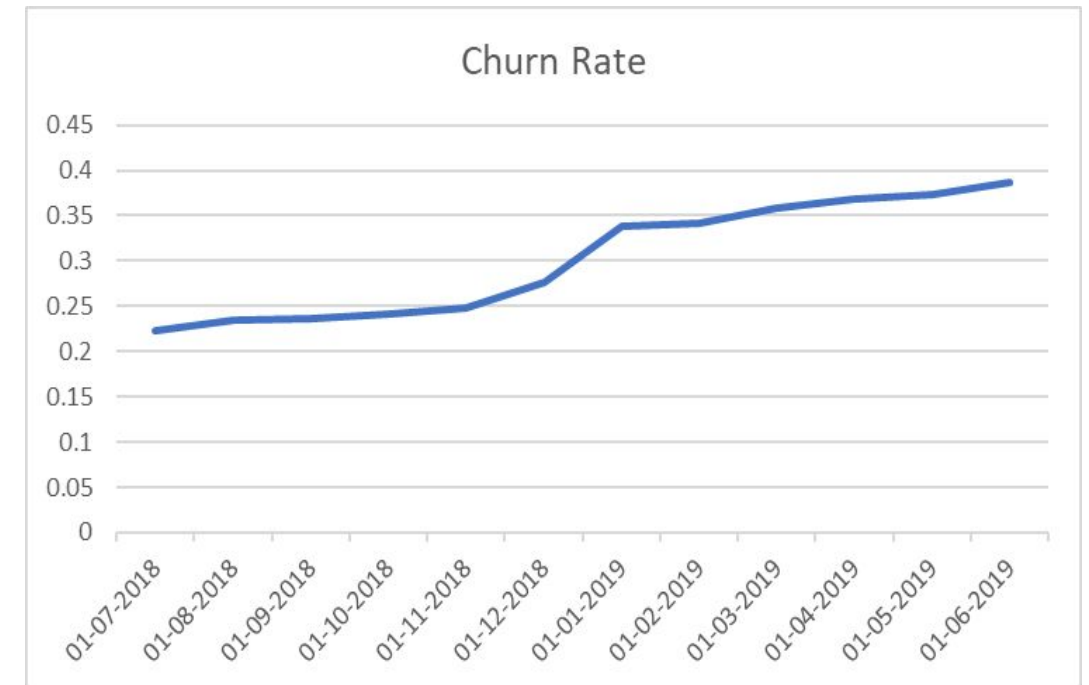
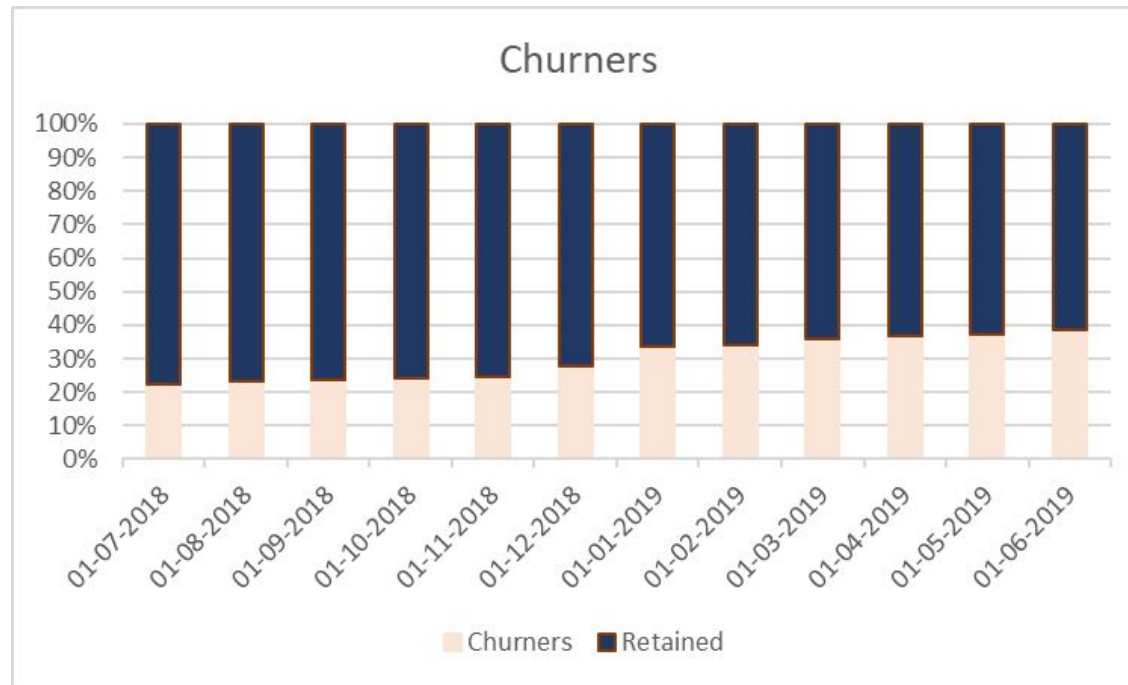
*calculated monthly based on YoY activity

Transition graphs



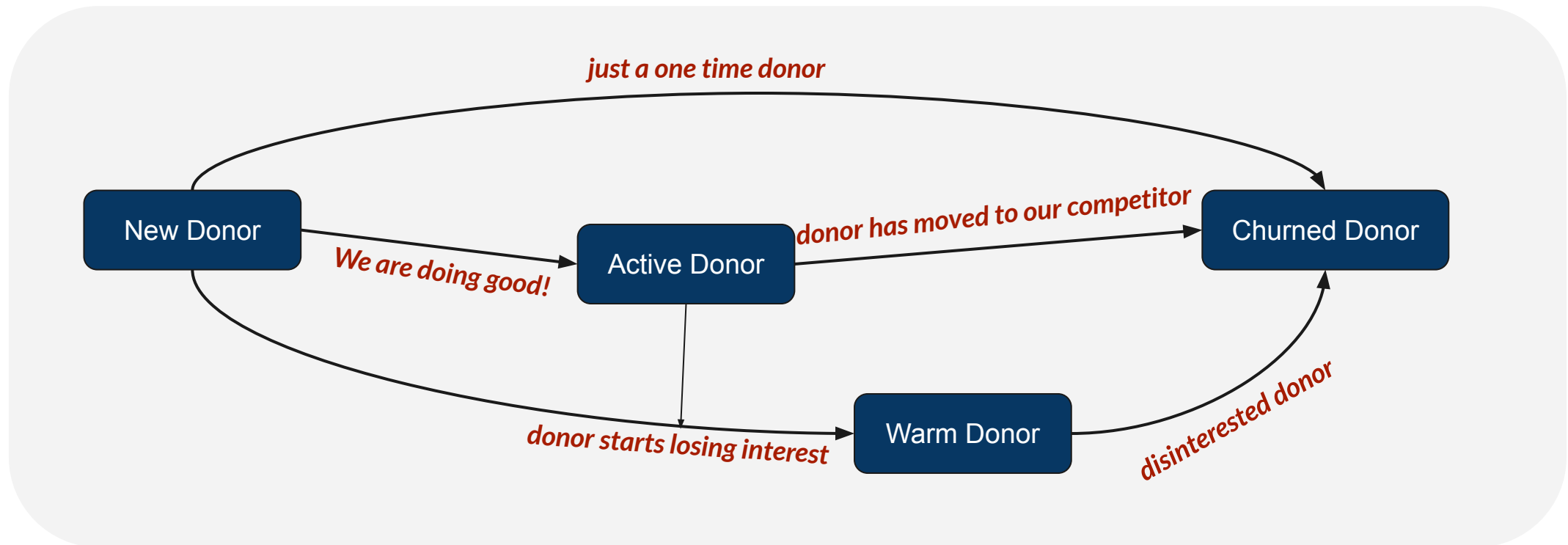
- This graph shows us the movement of customers from one segment to another.
- The donors moving towards cold have high probability of becoming inactive -> churning.
- The donors moving to inactive, could have possibly churned.
- Consider donors moving from region of activity to region of inactivity. And identify WHY?

Monthly churn prediction



The churn rate varies between 22% to 38%. The predicted churn rate is basically giving us the indication of the donors who might churn

Analysing churn behaviour



Recommendations

Analytics to serve the charity objectives



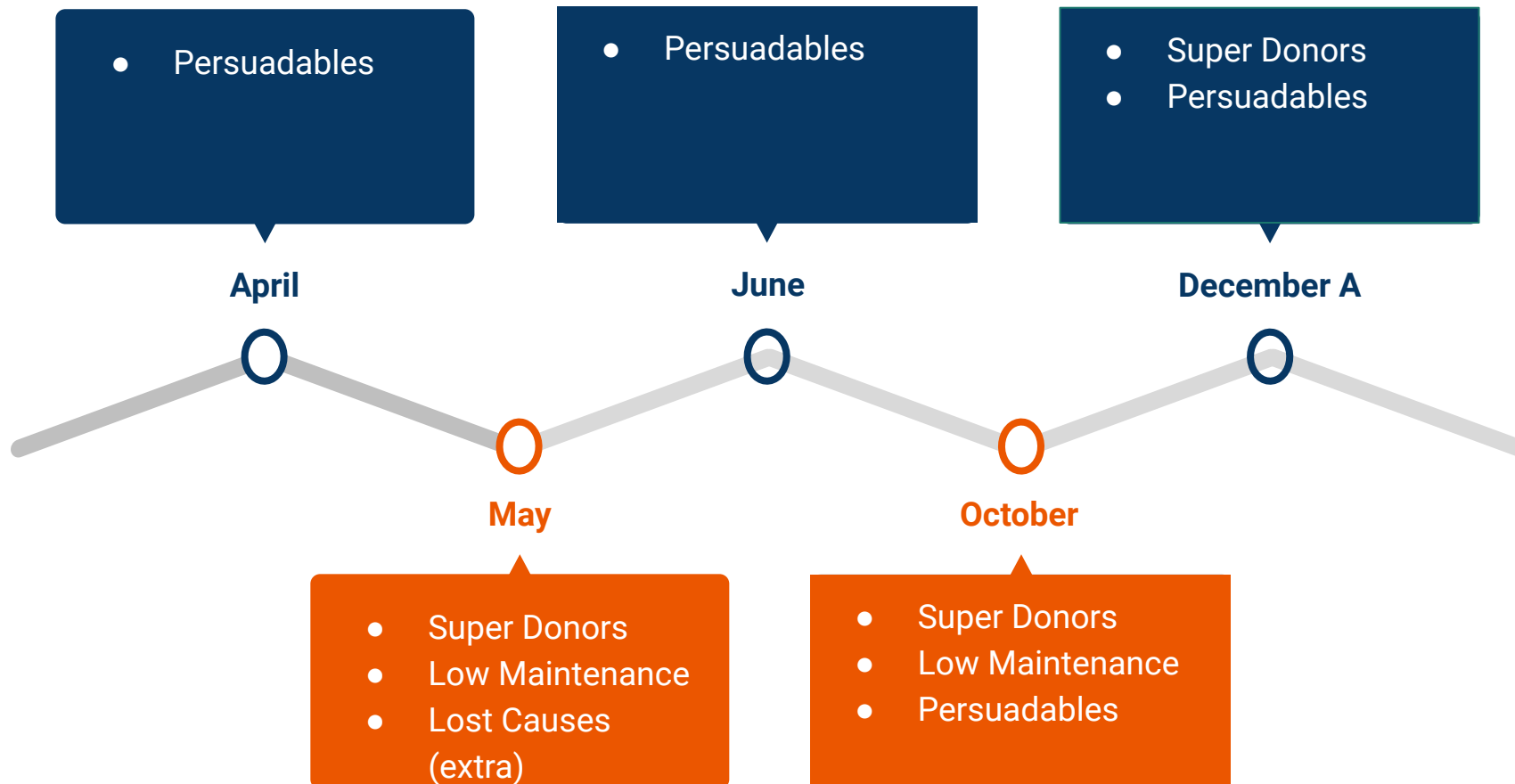
All these models give the manager **different levers** that can be used to meet charity short-term and long-term objectives. one may have this approach:

I- **Short Term Objective:** Target donors with a high expected donation amount in order to maximize charity cash flows

II- **Long Term Objective:** Target donors who are highly susceptible to churn (even if their expected donation amount is low), prioritizing top-tier segments first (super donors & persuadables). Adapt reach according to the financial leeway.

III- **Long Term Objective:** Target prospects (potential new donors) in order to sustain the donor database growth. Adapt reach according to the financial leeway.

Frequency of solicitation for each segment



Persuadables

4 solicitations every year, around one every two months starting from April

Super Donors

1 solicitation at the end of each trimester (May, October and December)

Low Maintenance

Solicitation twice a month in May and October

Lost Causes

We should avoid losing money on them. Can try to get them back in May

Type of solicitation for each segment

Persuadables have a lot of potential but are few, hence tracking our solicitations/messages by their effectiveness on them could be the key.



Top Donors are extremely crucial, so the relationship must be kept really tight and personal. Messages should be inclusive to focus on the importance of their contributions

Low Maintenance are the largest segment, so personalized communications is not an option. There probably could be non-convincible, semestral updates on charity initiatives should be preferred

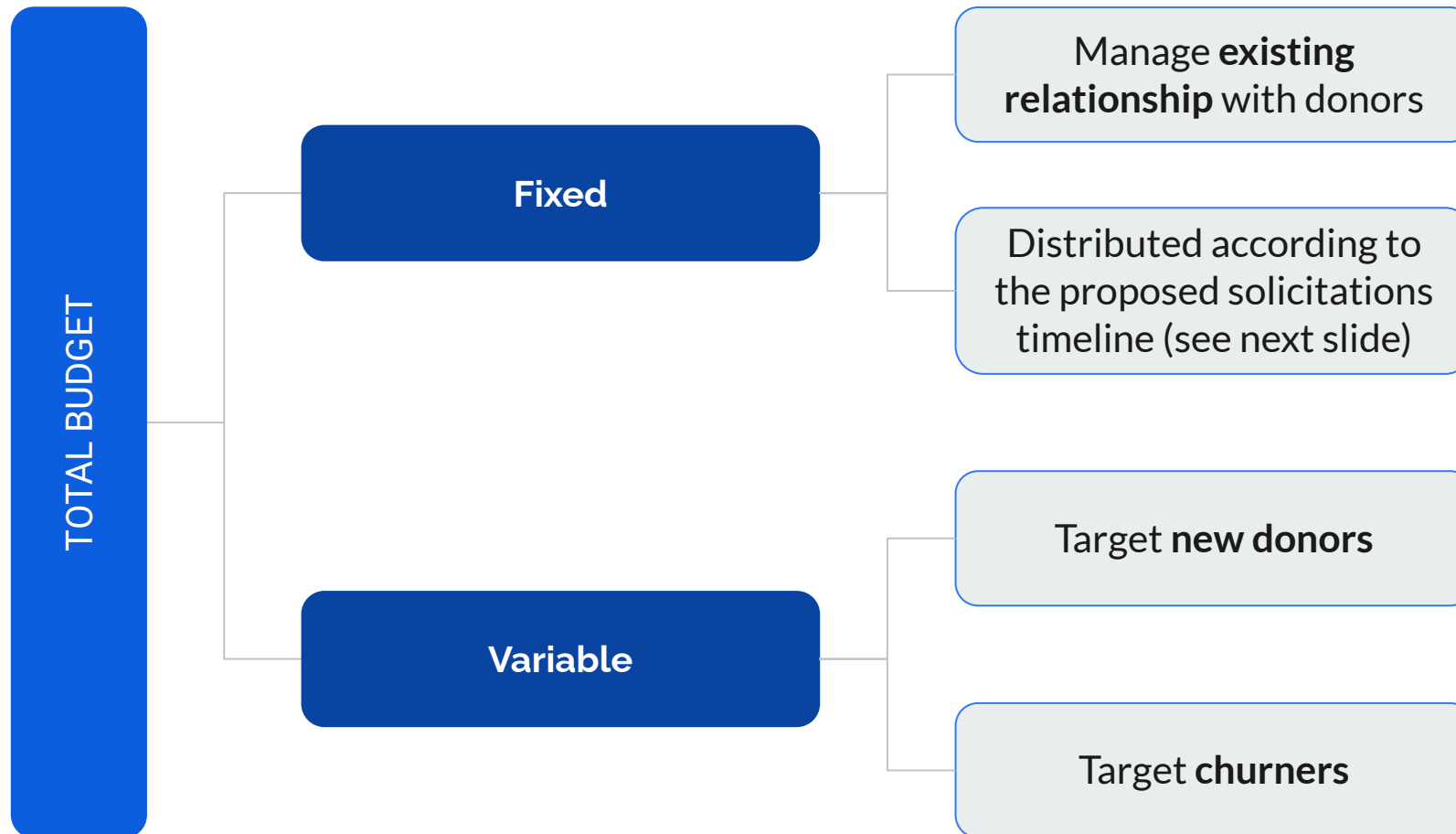
General Recommendations




- **Sending out Thank You notes** to give a feeling of impact and inclusivity. Marketing is more about selling an emotion rather than a product. In our case, we can do something to **stimulate the emotions by sharing the impact of their previous donation** for the betterment of the planet or needy people.
- **Monitor Social Media** presence of the Charity. Donors often go online to check the credibility of charity organisation. This can attract new donors and foster a feeling of community engagement to help reach wider audience.
- **Relationship building** with the top segments of the donors effectively. Priority and special attention to high networth segments can help positively impact their generosity.
- **Encourage the existing persuadable donors to switch to “Automatic” Deductions.**
- **Start a referral program.** This can hugely impact the campaign outreach.

Budget Planning

Estimation of the distribution of the budget



Estimation of the distribution of the fixed budget



Campaign Name	Number of donors to be solicited*	Total budget Allocation (% of the fixed budget)
March	0	0
April	3,450	6.7%
May	18,800	36.6%
June	3450	6.7%
August	0	0
October	22,250	43.3%
November	0	0
December (A)	3465	6.7%
December (B)	0	0

*Numbers are based on the proposed timeline for segments' solicitations and on the actual number of donors belonging to each segment
As segments are updated the numbers should be scaled
51425