

## MOTM 2020 The Virtual Year

# Mine Your Data To Maximize Your Results

### Introduction: Laurent “Lo” de Janvry



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- BA Economics, UC Berkeley
- MBA, USC Marshall School of Business
- Private Sector: 5+ Years
  - Consulting, Marketing & Brand Strategy
  - Arthur Andersen, Mars/KalKan Foods, DelMonte Foods, Prophet Brand Strategy
- Higher Education: 20 Years
  - Currently Assistant Dean of College Relations & Development at UC Berkeley's College of Chemistry
  - 8 Years at Berkeley-Haas School of Business – Chief Director of Development Marketing & Annual, Reunion & Leadership Support
  - 6-1/2 Years at UC Berkeley – Director of Annual Giving Strategic & Direct Marketing Services
  - Independent Consultant

# POLL: Who Are You?

- How many of you are in...
  - Advancement Services
  - Annual Fund Direct Response Marketing
  - Leadership Frontline Fundraising
  - Alumni Relations
  - Other
  - Mix

## Strategic Marketing & Fundraising

-- Going Beyond Your Institutional Knowledge, Intuitions & Assumptions

### Needs

- Prospect Identification
- Campaign Planning
- Branding & Messaging
- Resource Prioritization
- Direct Response Marketing
- Sales/Outreach
- Evaluation & Analysis

### Tools

- Wealth Screening
- Data Mining & Modeling
- Market Research
- Benchmarking & Secondary Research
- Market Tests
- Measuring & Reporting

## What is Data Mining?

Data mining: process by which you 'sift' through data to identify correlations between characteristics and a desired behavior/outcome

<u>Desired Behavior</u>	<u>Characteristics</u>	<u>Correlation</u>
Annual Giving	Association Membership	+/-
Major Giving	5+ Annual Gifts	+/-
App. Acceptance	Catholic/Private HS	+/-

## What is data modeling? What are predictive models?

Predictive Model: mechanism (i.e. regression analysis) to 'score' constituents according to the likelihood of a desired behavior

### Examples of Desired Behaviors to Predict:

- New Annual Fund Donors
- New Leadership Level Donors
- New Major Gift Donors
- New Planned Giving Donors

## Why do we want to develop a predictive model?

- Prioritize resources (budget and staff) to focus upon prospects most likely to give to your organization
- Greater returns on investment (ROI) by maximizing upon returns of allocated resources towards prospects with greatest potential returns

## How can one go about developing predictive models?

- There are options...each with their inherent tradeoffs...and which 'one' is best for your organization depends on...
  - Objectives
  - Data
  - Budget
  - Staff resources & expertise
  - Time
  - Needs



## How can one go about developing predictive models?

- 1) Hire An Outside Consultant
  - A) Small Players: Myself & Peter Wylie
  - B) Large Players: Blackbaud, BWF, Wealth Engine, etc.
- 2) Do-It-Yourself/In-House

## How can one go about developing predictive models?

- 1) Hire An Outside Consultant
  - A) Small Players: Lo & Peter Wylie
    - Personalized model for your organization
    - Own your model...so you can refresh scores whenever you want
    - Train staff to do more modeling 'in-house'
    - Can be done separately than a full wealth-screening/campaign plan

## How can one go about developing predictive models?

### 1) Hire An Outside Consultant

#### B) Large Players: Blackbaud, BWF, WE, etc.

- Standard model, using little to no insider data
- Leverage outside public data sources
- Can turn over a model quickly
- You do not own your model, it is a magical 'black box'
- You have to pay again and again to refresh your scores



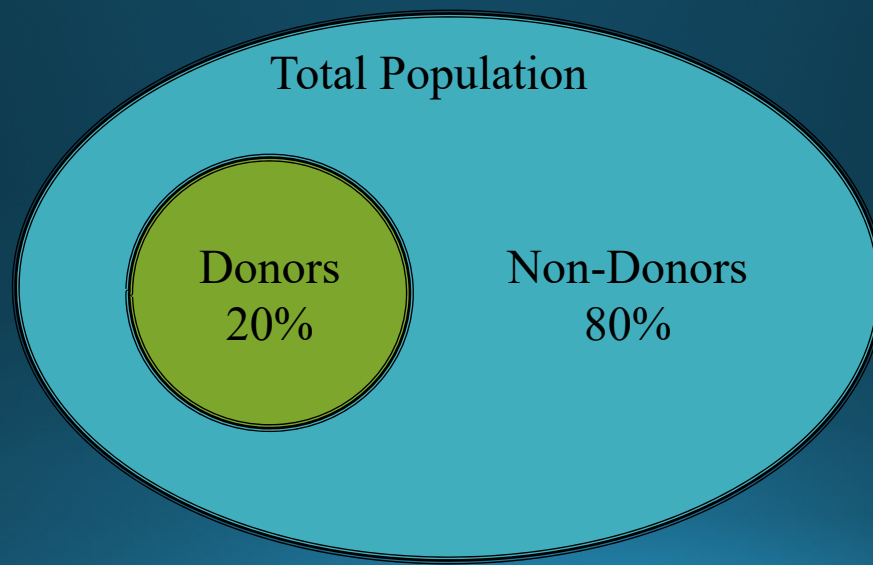
## How can one go about developing predictive models?

### 2) Do-It-Yourself/In-House

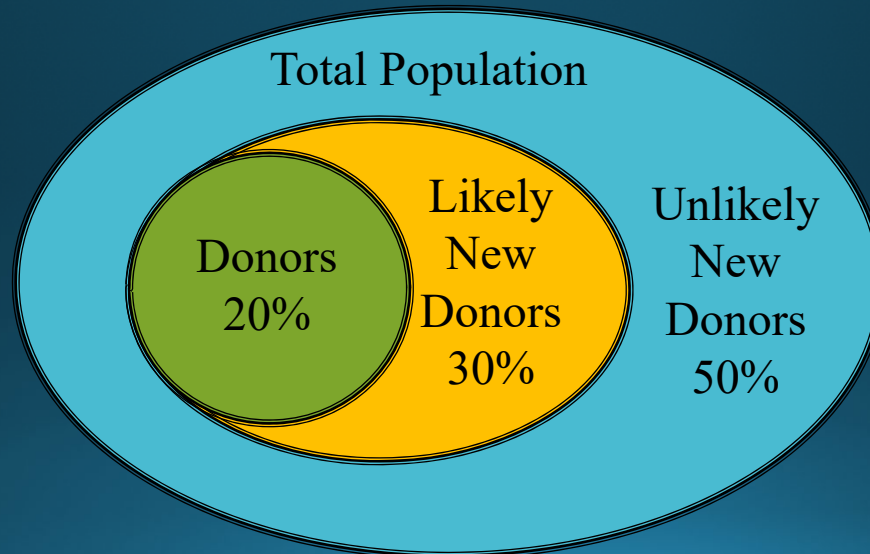
- Leverage a graduate student or statistics faculty member – rigorous analysis, but little program knowledge & limited time
- Hire or train someone in your data team – greater program knowledge, but limited time & possibly less rigorous analysis
- Cost effective, but time intensive
- Uncertain final work product

## Data Mining & Modeling -- ABCs

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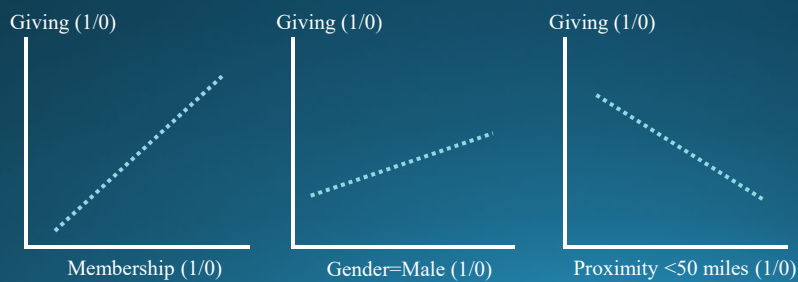
- Cross Tabs to identify potential relationships and predictive vars (1/0)

Donor Status x Membership Status	Donors	Non-Donors	Totals
Members	70%	30%	100% (40%)
Non-Members	10%	90%	100% (60%)
Totals	35%	65%	100%



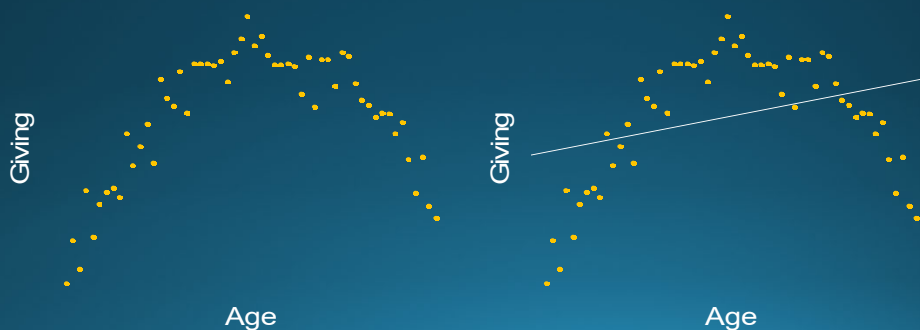
## Data Mining & Modeling -- ABCs

- Correlation Matrices or Linear Regressions to identify correlations and statistical significance



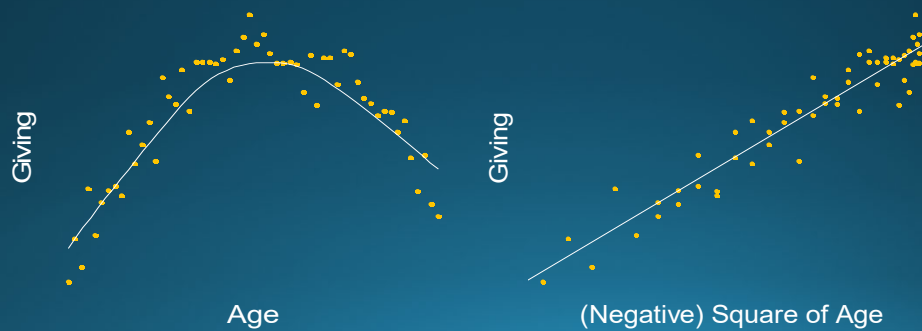
## Data Mining & Modeling -- ABCs

- Sometimes, *transforming* a variable will allow a relationship to present itself



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## Data Mining & Modeling -- ABCs

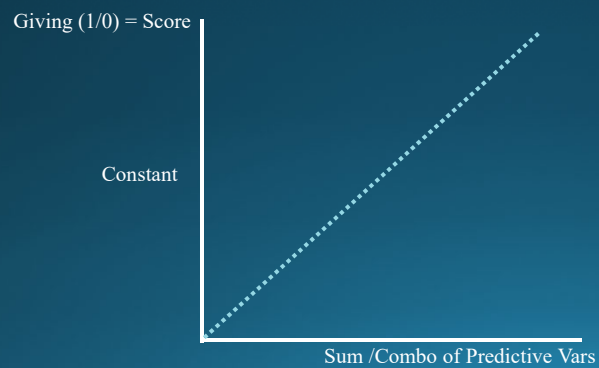
- The characteristics should be *independent* of the desired behavior

<u>Desired Behavior</u>	<u>Characteristic</u>	<u>Correlation</u>	<u>T-Stat</u>
Leadership Giving	Donor's club membership	+++!	>1.67

(Everyone who gave a leadership level donation was made a donor's club member)

## Data Mining & Modeling -- ABCs

- Linear Multi-Variable Regression



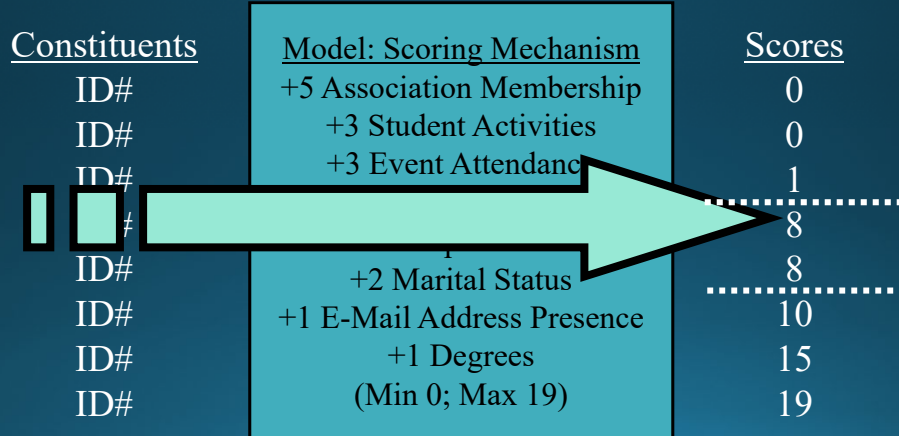
## Data Mining & Modeling -- ABCs

- Linear Regressions to identify correlations and statistical significance

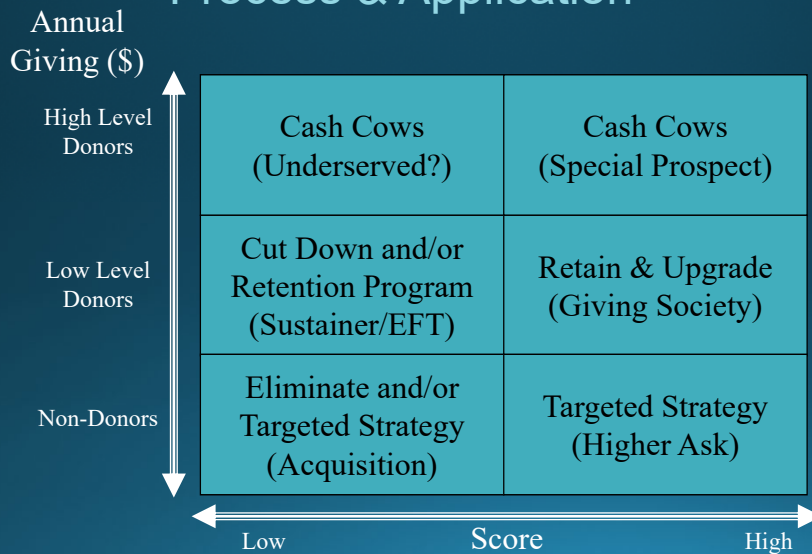
<u>Desired Behavior</u>	<u>Characteristic</u>	<u>Correlation</u>	<u>T-Stat</u>
Annual Giving	Association Membership	+/-	>1.67
	Gender: M	+/-	>1.67
	Proximity <50 Miles	+/-	>1.67

Correlation Coefficient (or Beta): Weight of relationship or score  
 T-Stat: Statistical significance of variable to help predict

## Data Mining & Modeling -- ABCs



## Data Mining & Modeling -- Process & Application



## Data Mining & Modeling -- Examples

- University of Melbourne
  - Annual Giving Model
    - Prioritizing Acquisition Efforts
- University of California, Berkeley
  - Annual Giving Model
    - Prioritizing Acquisition Efforts
- Berkeley-Haas School of Business
  - Leadership Donor Model
    - Prioritizing Prospect Qualification Outreach

## University of Melbourne -- Annual Giving Model

+5 * 'Memb Affil 1/0'	+1 * 'Family Rel 1/0'
+3 * 'Al Act 1/0'	+1* 'Atnd Al Dnr 1/0'
+3 * 'Al Int 1/0'	+1 * 'Atnd Tg 1/0'
+3 * 'Res College 1/0'	+1* 'Other Event 1/0'
+3 * 'Affil 1/0'	+3 * 'U Deg Med 1/0'
+2 * 'Male 1/0'	+2 * 'U Deg Vet 1/0'
+2 * 'Deg Stat B 1/0'	+1* 'U Deg Eng 1/0'
+2 * 'Mar Status	+1* 'G Deg Eng 1/0'
F-M-P-W 1/0'	+1* 'G Deg Med 1/0'
+2 * 'B E-Mail 1/0'	+1* 'G Deg Sci 1/0'
+2 * 'H E-Mail 1/0'	+1* 'G Deg Vet 1/0'
+2 * 'Sports 1/0'	[Min 0 / Max 43 (Act 0-33)]

## University of Melbourne -- Annual Giving Model

Score	Count	%Tot	%Donors	%Nons	Mean	Median
0-3	4,724	23%	5%	42%	\$20	\$0
4-6	5,292	26%	16%	37%	\$85	\$0
7-13	5,436	27%	37%	17%	\$252	\$25
13+	4,753	24%	42%	4%	\$1,795	\$98
Total	20,205	100%	100%	100%		

## UC Berkeley -- Annual Giving Model

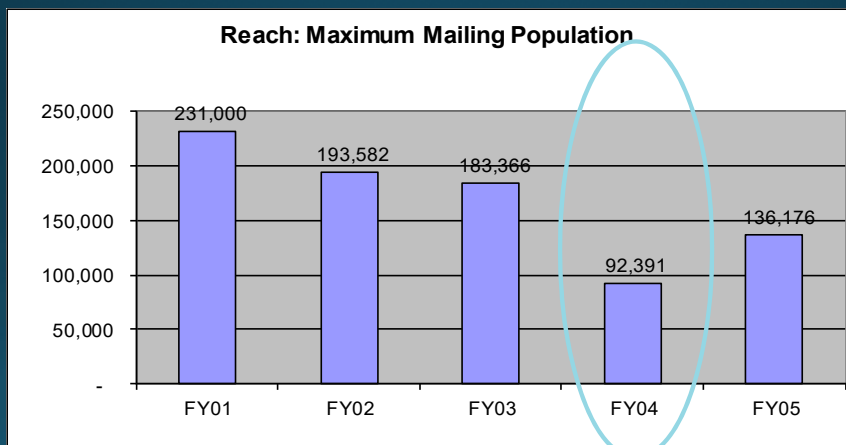
- Business need: Target limited resources to increase ROI of mass marketing programs
- Analyzed a random sample of 10,000 donors to Cal Fund (our annual fund) in previous fiscal year
- Determined variables that predict giving to Cal Fund & developed scoring model



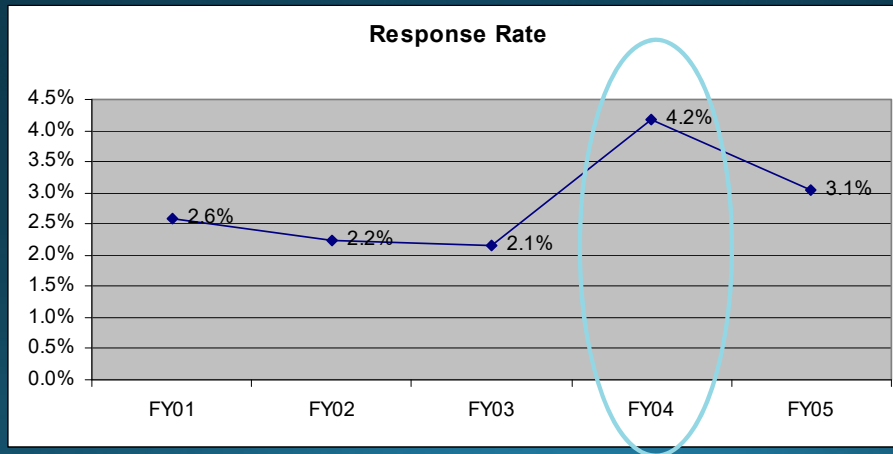
## UC Berkeley -- Annual Giving Model

- |                                                                   |                                              |
|-------------------------------------------------------------------|----------------------------------------------|
| +3 for alumni who are lifetime members of the CAA                 | +1 for alumni with undergrad degree only     |
| +2 for alumni with both undergraduate & graduate degrees from Cal | +1 for alumni with bus. phone in database    |
| +2 for alumni with Cal activities listed                          | +1 for alumni with an e-mail in database     |
| +2 for alumni with Cal children                                   | +1 for alumni with Mrs. stated as a prefix   |
| +2 for alumni with Cal spouse                                     | +1 for alumni with Dr. stated as a prefix    |
| +2 for alumni with current annual membership of CAA               | +1 for alumni with an interest listed in db  |
| +2 for alumni who have given to campus, excluding Cal Fund        | +1 for alumni in San Mateo & Santa Clara     |
| +1 for alumni with lapsed membership of the CAA                   | +1 for alumni from Col. of Letters & Science |
|                                                                   | +1 for alumni with marital status married    |
|                                                                   | +1 for alumni with marital status divorced   |
|                                                                   | +1 for alumni with marital status widowed    |
|                                                                   | +1 for alumni with Cal parents               |

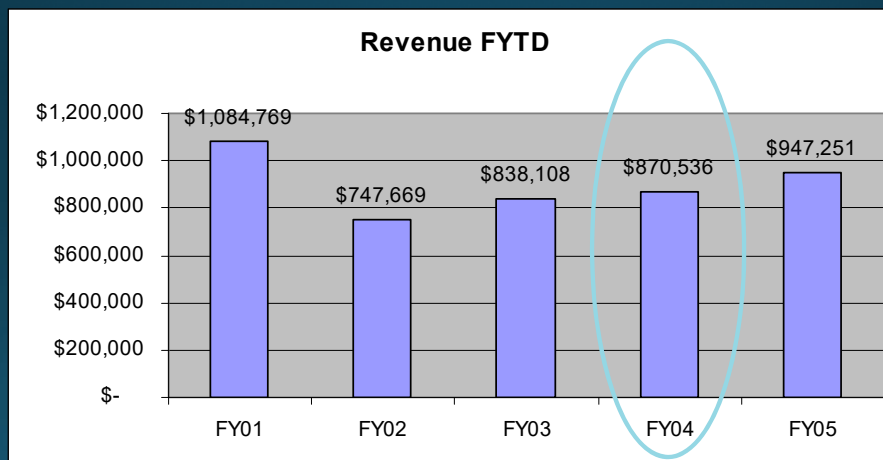
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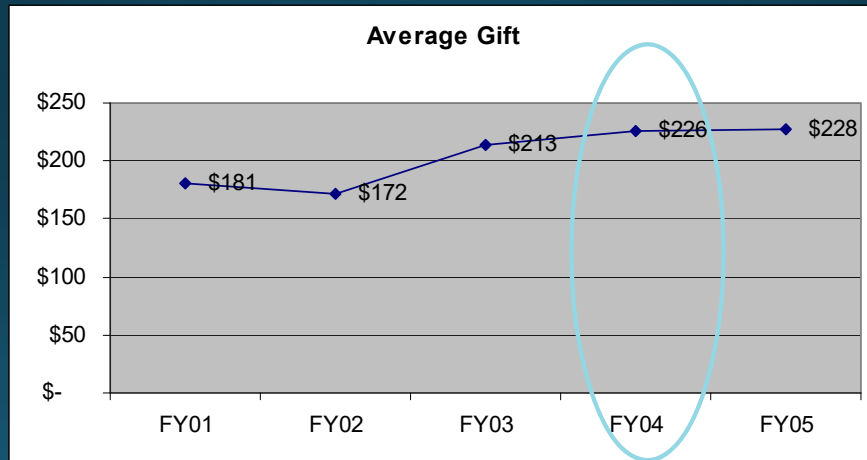


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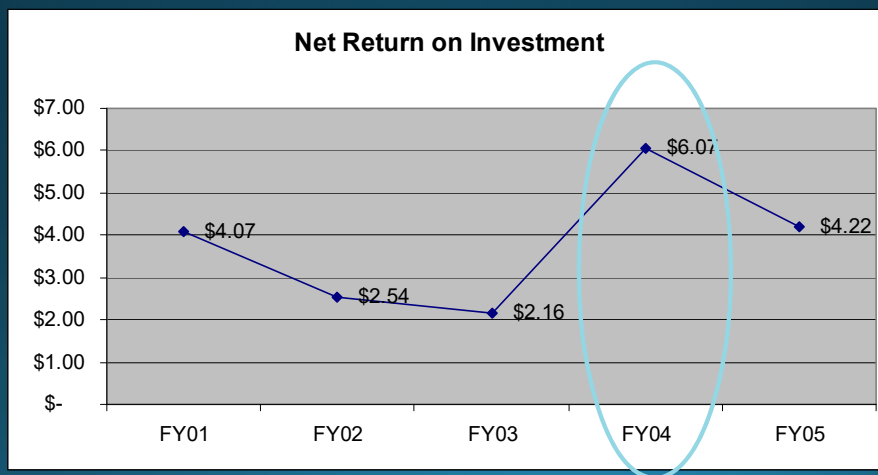




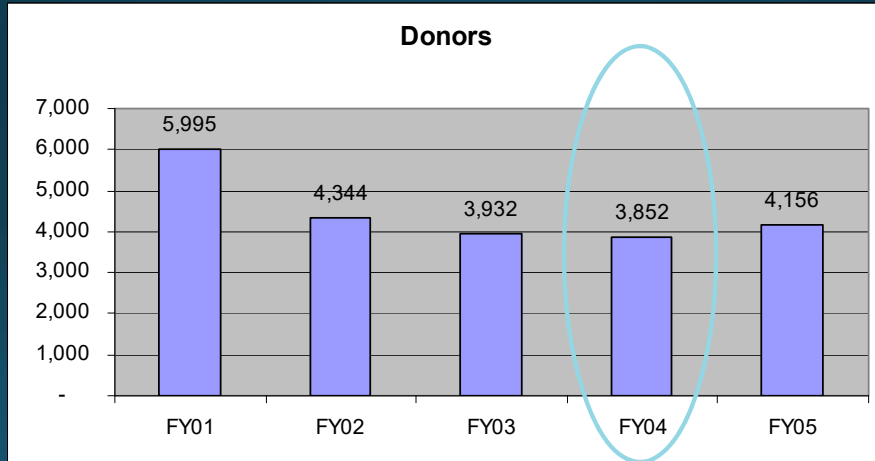
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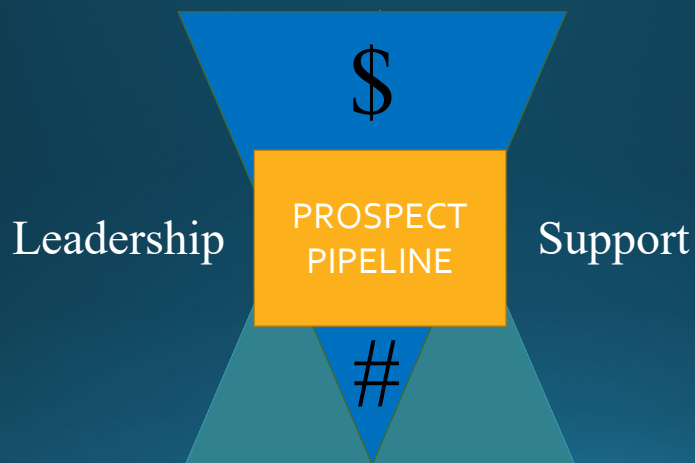


## Berkeley-Haas School of Business -- Leadership Donor Model

# Leadership Giving Overview



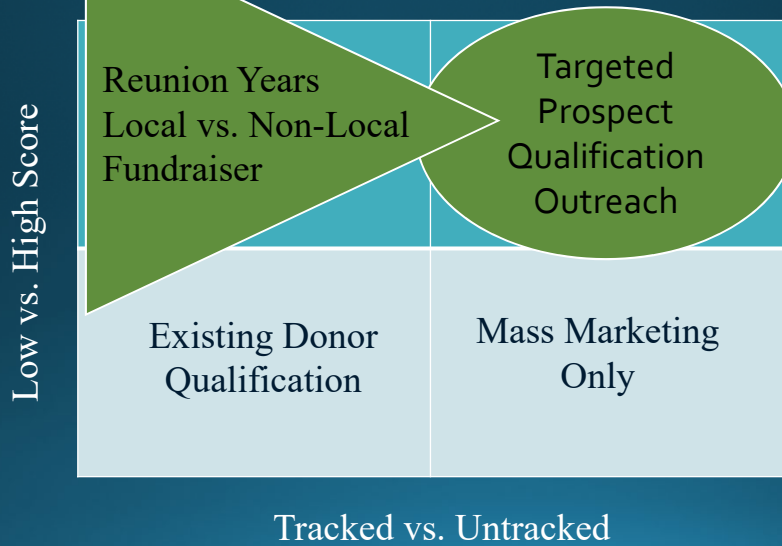
# Leadership Giving Overview



## Leadership Donor Model Overview



## Haas School of Business -- Leadership Donor Model



## Berkeley-Haas School of Business -- Leadership Donor Model

BERKELEY-HAAS \$1K+ DONOR MODEL				Variable	Coefficient	t-ratio	Score
Response variable is:	HLargest\$1K+ HOH Donors Only			Last Event 10+ FYs Ago	0.02	3.07	2
cases selected according to:				Haas Board (Current/Former)	0.17	7.52	17
37,288 total cases of which 20,375 are missing				Haas Council (Current/Former)	0.03	3.80	3
R squared = 53.8% R squared (adjusted) = 53.6%				Other Haas Vol (Current/Former)	0.01	1.09	1
				International	0.03	3.67	3
				Non-CA	0.03	6.91	3
<u>Variable</u>	<u>Coefficient</u>	<u>t-ratio</u>	<u>Score</u>	Deloitte Employees	0.06	2.81	6
Intercept	(0.06)	(10.90)	(6)	Haas Employees	0.09	2.44	9
MBA + Other Graduate Degree	0.05	1.52	5	Presidents-Principles-Partners	0.02	2.30	2
FT MBAs	0.02	4.16	2	CXOs	0.01	1.10	1
Repeat Donors: 2-4 Yrs	0.01	1.22	1	Managing Partners	0.04	2.91	4
Loyal Donors: 5+ Yrs	0.03	5.89	3	Trustee-Chairs-Board	0.08	4.46	8
Campus Inclination 3-5	0.03	1.61	3	Job Title: Portfolio	0.12	3.29	12
MG Score 80-10	0.73	79.70	73	CPA-Treasurer	0.04	1.36	4
MG Score 50-79	0.61	65.00	61	Work in Redwood	0.03	1.91	3
MG Score 15-49	0.46	78.70	46	Work in Sunnyvale	0.03	1.56	3
Last Donate Last FY	0.08	9.94	8	45-49 Years Old	0.01	2.21	1
Last Donate Prior FY	0.06	9.16	6	50-64 Years Old	0.02	3.86	2
Last Donate 3-5 FYs Ago	0.05	7.09	5				
Last Donate 6-9 FYs Ago	0.02	3.47	2				
Last Donate 10-23 FYs Ago	0.01	1.79	1				

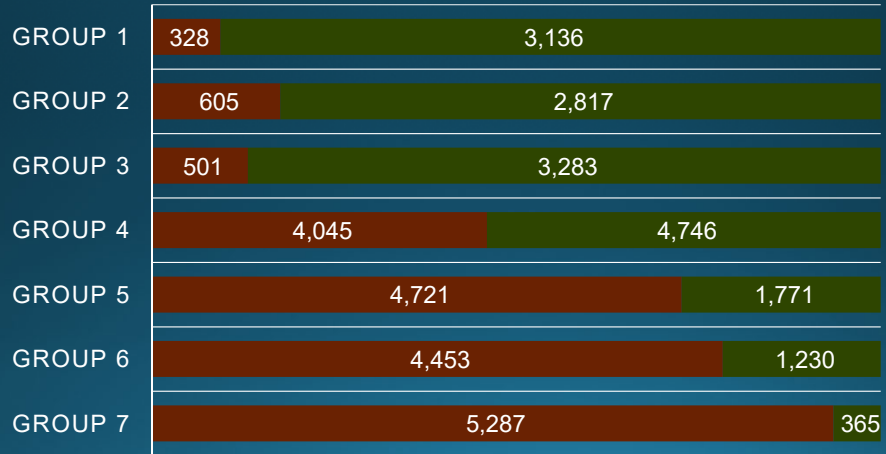
## Berkeley-Haas School of Business -- Leadership Donor Model

Frequency breakdown of \$1K+ Donor Model Summary				
Group	Score	Count	%	Cumulative %
Total Cases		37,288		
Number of Categories		7		
Group 1	46 to 111	3,464	9.3	9.3
Group 2	7 to 45	3,422	9.2	18.5
Group 3	3 to 6	3,784	10.1	28.6
Group 4	-1 to 2	8,791	23.6	52.2
Group 5	-3 to -2	6,492	17.4	69.6
Group 6	-4 to -5	5,683	15.2	84.8
Group 7	-6	5,652	15.2	100.0

## Berkeley-Haas School of Business -- Leadership Donor Model

### \$1K+ DONOR MODEL

■ Non-Donors ■ Donors



## Berkeley-Haas School of Business -- Leadership Donor Model

### \$1K+ DONOR MODEL

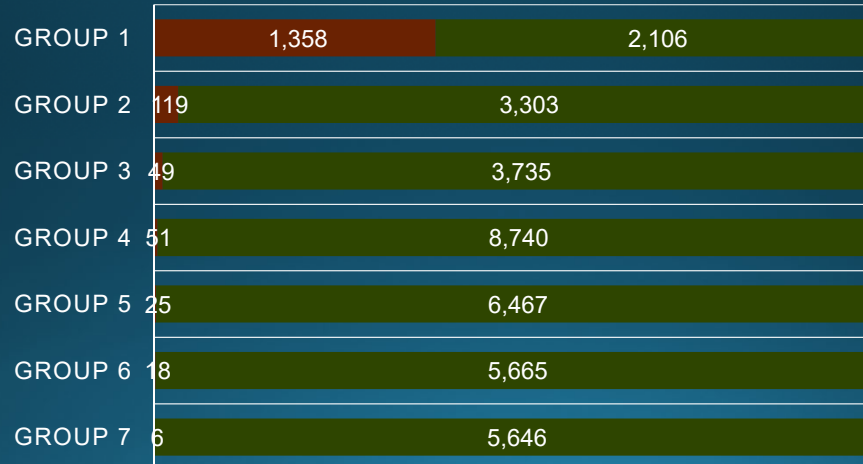
■ < \$1K Donors ■ \$1K+ Donors



## Berkeley-Haas School of Business -- Leadership Donor Model

### \$1K+ DONOR MODEL

■ Tracked ■ Untracked



## Berkeley-Haas School of Business -- Leadership Donor Model

### Subject: Meeting request from Berkeley-Haas

Hi Elizabeth,

Your Haas reunion is coming up in April 2016. I'd like to meet with you to chat about your engagement and further investment in our school.

How about we chat at 12pm on August 4th, 5th, or 6th?

I look forward to connecting,  
Jake

Jacob "Jake" Schroth  
Associate Director, Alumni Relations and Development  
Haas School of Business, UC Berkeley

## Berkeley-Haas School of Business -- Leadership Donor Model

**Subject: Personal meeting request from Berkeley-Haas**

Happy New Year, Rob.

I hope you have calendared your upcoming Berkeley-Haas Reunion coming up on the weekend of April 29th-May 1st.

With your reunion approaching, I'd like to talk with you about your engagement and further investment in our school.

Do you have 20 minutes to talk with me at noon on February 2nd, 3rd, or 4th?

I look forward to hearing your Haas story,  
Jake

Jacob "Jake" Schroth  
Associate Director, Alumni Relations and Development  
Haas School of Business, UC Berkeley

## Berkeley-Haas School of Business -- Leadership Donor Model

- Target: Group #1 = 2016 Reunion Prospects
- Total Prospect Pool: 336
- Total Prospects Reached: 243 (72%)
- 3 Leadership Giving Officers (LGOs)
- Segmented by LGO \* Local vs. Non-Local
- Outreach #1 & #2 – July-Sept
- Outreach #3 & #4 – Jan-Feb
- Positive Response: 66 (27%)
- Negative Response: 22 (9%)
- Very Positive Financial Results



## Berkeley-Haas School of Business -- Leadership Donor Model

~\$170K in commitments & donations

- \$100K commitment
- \$30K commitment (\$6K/yr \* 5 yrs) vs. \$1K
- \$25K commitment (\$5K/yr \* 5 yrs) vs. \$1,250
- \$6K commitment (\$2K/yr \* 3 yrs) vs. \$1K
- \$2.5K vs. \$250
- \$1.6K vs. \$850
- \$1.5K vs. \$0
- \$1.5K vs. \$500
- \$1K vs. \$250
- \$500 vs. \$0
- \$500 vs. \$100

## Data Mining & Modeling -- Realizations

- The Power & Plight of Data
  - Start coding all event attendance & engagement activities (volunteering, speaking)
- Imagine mining Google/Facebook/LinkedIn
- Consider Prospect Tagging & Labeling
  - Electronic Newsletter Readership
  - Event Type
  - Expertise & Interests

## Data Mining & Modeling -- Warnings!!!

- Understand Your Business Objectives (And Their Inherent Tradeoffs)
  - Targeting resources (ROI) vs. investing in growth (donor base)
- Know (How To Apply) Your Model
  - Predicting the future using the past
    - Changing Demographics (gender/race)
  - Doing the same and expecting more
    - Market Saturation vs. New Deployment/Strategies (don't continue to push, when the door says pull!)
  - Don't eliminate your younger alumni even though they have low scores!

## Parting Thoughts

- Can you – and your institution's next campaign - afford to rely on luck?
- Our Next Gen Major Donors will look different than our current/historical major donors – Are you ready to effectively engage them?
- Rethink your annual fundraising programs – don't focus on donor participation rates...focus on your prospect pipeline conversion rate!

# QUESTIONS? THOUGHTS?

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