NATIONAL MULTIPLE SCLEROSIS SOCIETY BIKE MS FUNDRAISING

Mills, Jeff

GENBA 894 Summer 2018

Background Information

The National Multiple Sclerosis Society (NMSS) seeks to help people with multiple sclerosis and their families. Help is provided by raising funds to support research, advocate, educate and supply support services. The NMSS' flagship fundraising event is Bike MS, which is the largest charity bike event in the United states. Previously, Bike MS has solicited 70,000 participants and raised over $68 million through more than 75 rides.

A typical Bike MS event shares the following characteristics:

- One or two-day event,
- Located within reasonable driving distance from metropolitan areas,
- Offer participants first aid, mechanics, rest areas, and shuttles,
- Community "village" with vendors, dining, beer gardens, camping (in some locations), team tents, and entertainment.
- Riders chose among routes ranging from 10 to 100 miles per day.

Teams are responsible for 87% of fundraising and Bike MS participant demographics of mostly male, middle age, higher income earners align well with corporate events. Previous research has shown that corporate teams of 10 or more cyclists are seven times more valuable than any other kind of team. For this reason, companies with a large professional employee base, especially those with a corporate culture of health and wellness, are vital recruiting targets.

Business Problem

Currently, Bike MS has struggled to maintain fundraising and participation growth due to overcrowding in the charity cycling marketplace. This increased level of competition has caused Bike MS participation and revenue to steadily decline since peaking in 2012. Despite retention rates over 50%, solicitation of new cyclists cannot keep pace with the number of cyclists no longer participating in Bike MS events. The NMSS believes it must increase new cyclist participation to find future success. Since 10+ members teams raise three times more money than smaller teams and over 41% of the 1,561 teams with 10+ members in 2017 were corporate teams, NMSS believes it must also recruit new 10 or more-member corporate teams to maximize fundraising efforts.

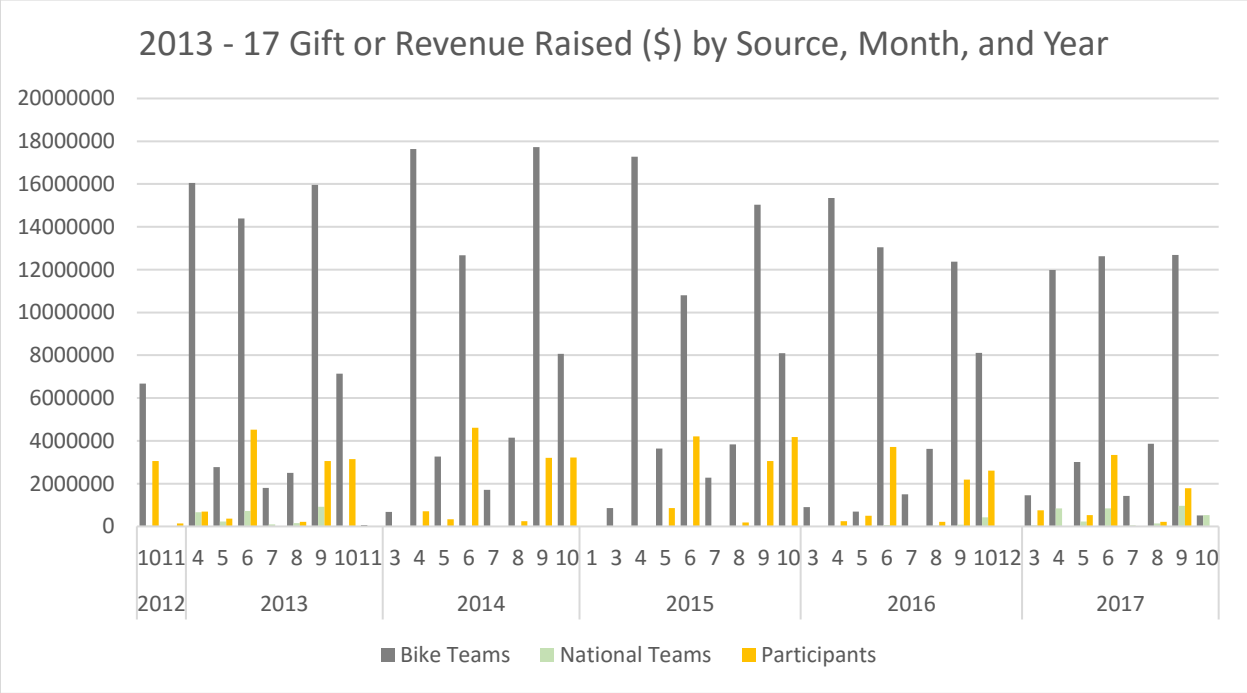
NMSS goals for 2018 Bike MS:

- Increase from 74,000 riders to 80,572 riders,
- Increase from 6,150 teams to 6,489 teams,
- Recruit 40,000 new riders,
- Increase number of corporate teams with 10 or more riders,
- Successfully utilize digital marketing efforts to impact fundraising goals.

Initial Data Analysis

Provided data were cleaned and examined to identify trends and determine accuracy of NMSS conclusions and assumptions. All data provided were found to contain some errors with the most common were misaligned columns due inaccurate characters dividing data (e.g. “2016(0001502456” instead of “2016,0001502456”). Additional errors resulted from typos and errors in data entry. Next entries were standardized to utilize the same values for categories (e.g. “Wife/Husband has MS” changed to “Spouse has MS”). Finally, dummy variables were created for categorical data with one variable dropped to avoid the dummy trap.

According to NMSS, Bike MS fundraising has struggled recently and with Bike Teams raising 87% of funds. This statement is confirmed in the chart below that depicts National Bike Teams, Bike Teams, and Bike MS Participants total money raised by month and year. However, after May 2017 a slight increase in fundraising is shown compared to 2016.



Bike Teams

Bike teams had nearly eleven members on average with the largest team having 725 members. Bike teams raised $9,003.45 on average with the maximum amount raised equaling $1,249,482. Summary statistics for bike teams fundraising and participation are recorded in the following table.

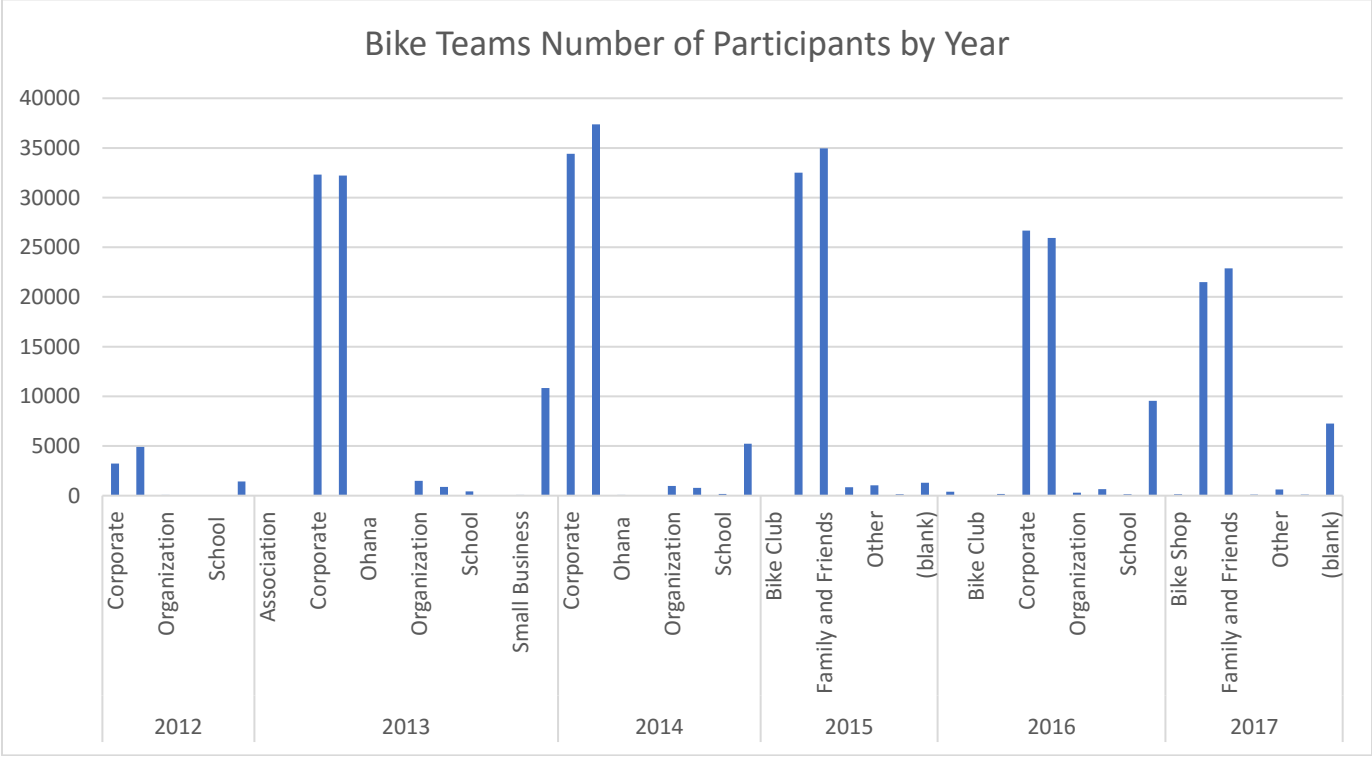
2013-2017 Bike Teams Summary Statistics	Number of Participants	"Team Total Confirmed ($)"
count	33,132	33,132
mean	10.70	$9,003.45
std	21.69	$28,457.23
min	0.00	$0.00
25%	2.00	$663.94
50%	5.00	$2,234.12
75%	10.00	$6,694.59
max	725.00	$1,249,482.00

Exploring the Bike Teams data further, two team divisions, 'Family and Friends' and 'Corporate', emerge as the overwhelming majority of Bike MS bike teams. If fact, 'Friends and Family" has nearly 3 times as many teams as 'Corporate.' The count of bike teams by team division is reported in the following table.

Total Number of Bike Teams by Division, 2013-2017

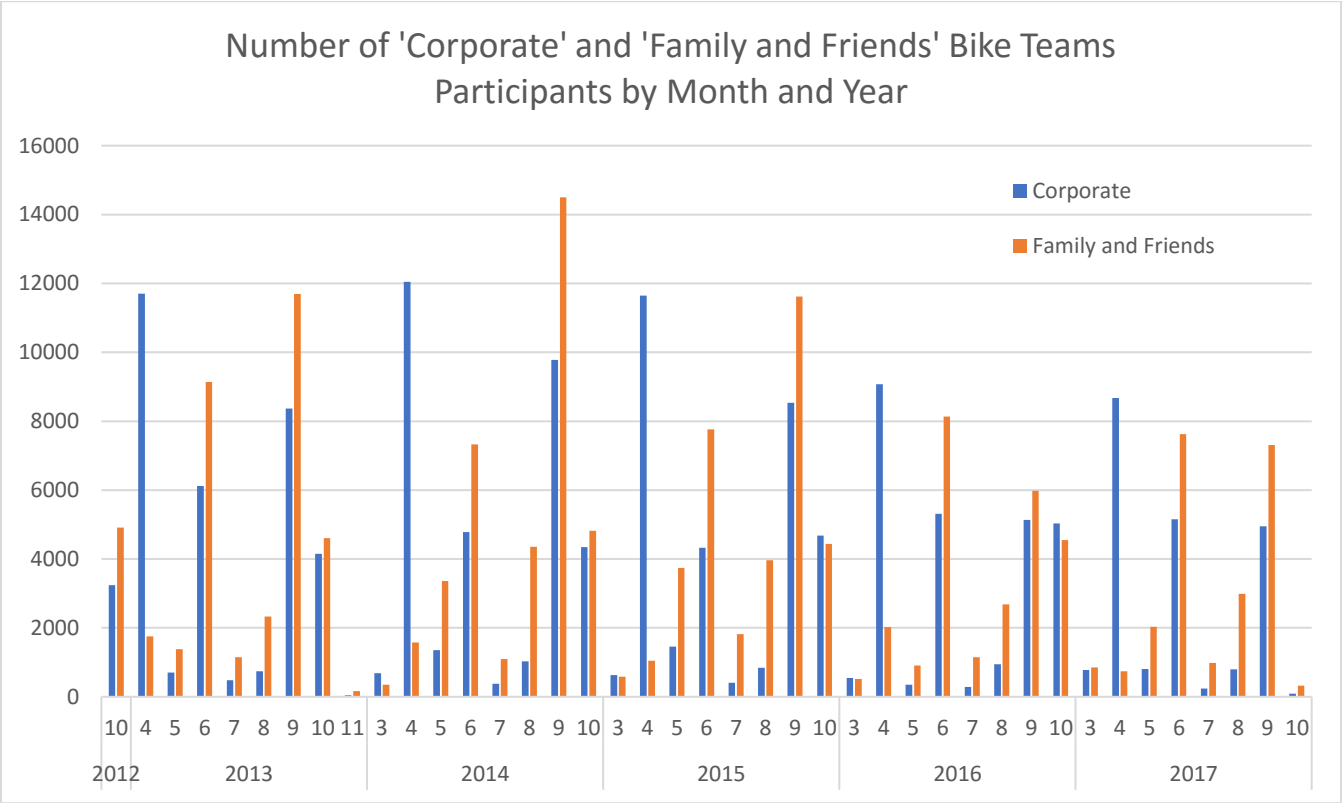
Division	Count
Family and Friends	21,641
Corporate	7,686
Other	628
Organization (Clubs; Civic Groups; Place of Worship; etc.)	338
School	101
Ohana	23
Bike Shop	16
Small Business	9
Open	9
Beer/Brewery	7
School	7
Bike Club	4
Association	1

Breaking the teams by year demonstrates that both 'Family and Friends' and 'Corporate' have been the two largest divisions since at least 2012. This information is depicted in the following chart.

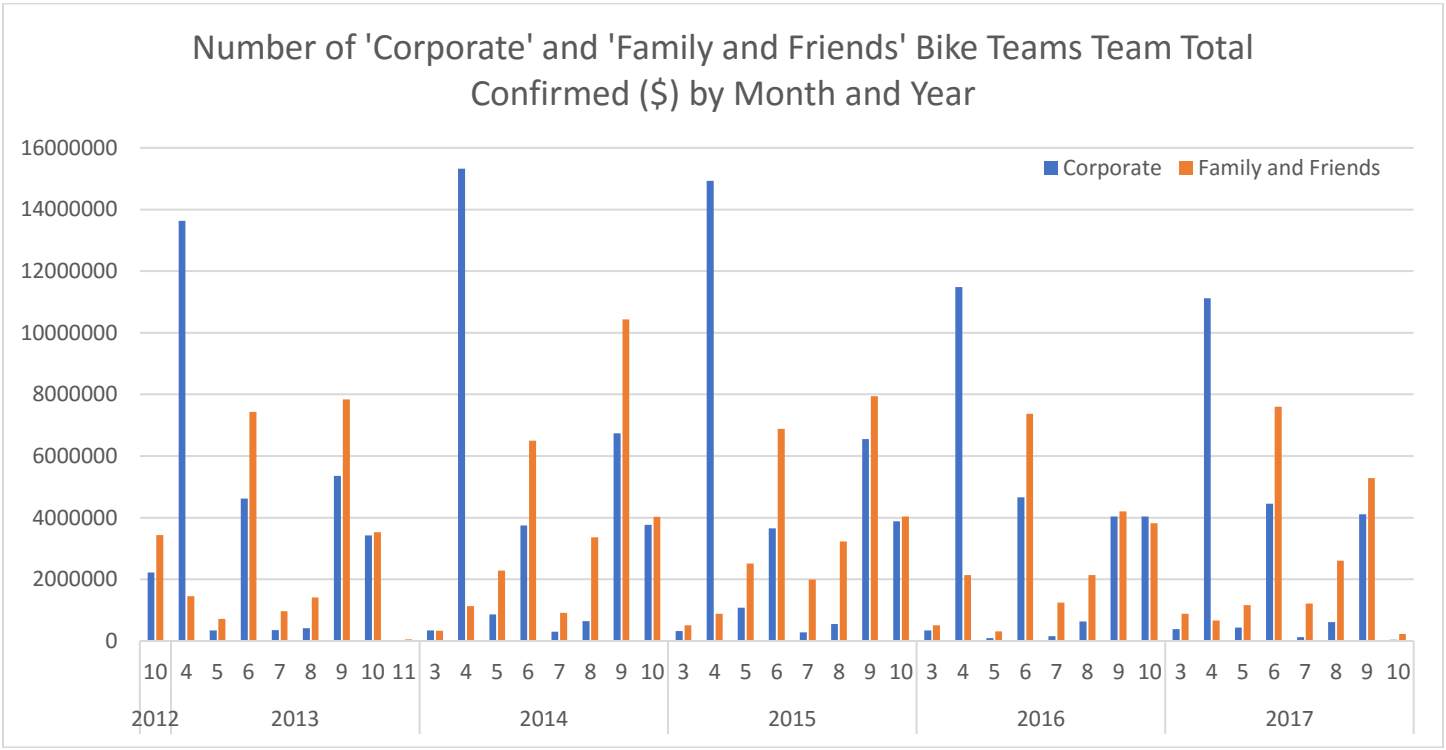


Isolating the Bike Teams contained in the 'Family and Friends' and 'Corporate' divisions allow for the Number of 'Corporate' and 'Family and Friends' Bike Teams Participants by Month and Year to be analyzed. Interestingly, the trend of years 2013, 2014, and 2015 for 'Friends and Family' is to peak later in the year, whereas 2016 and 2017 both appear to show a decline in participation as the year progresses. Specifically,

September was the peak participation for “Friends and Family’ until 2016, where June emerged as the month with the most participation. Further, ‘Corporate” division teams peak each year in April. Perhaps a participation fatigue, where participation wanes as the calendar year progresses is demonstrated by the following chart.



The same pattern demonstrated by Bike Teams participants is shown by Team Total Confirmed ($). This is demonstrated by the following chart.



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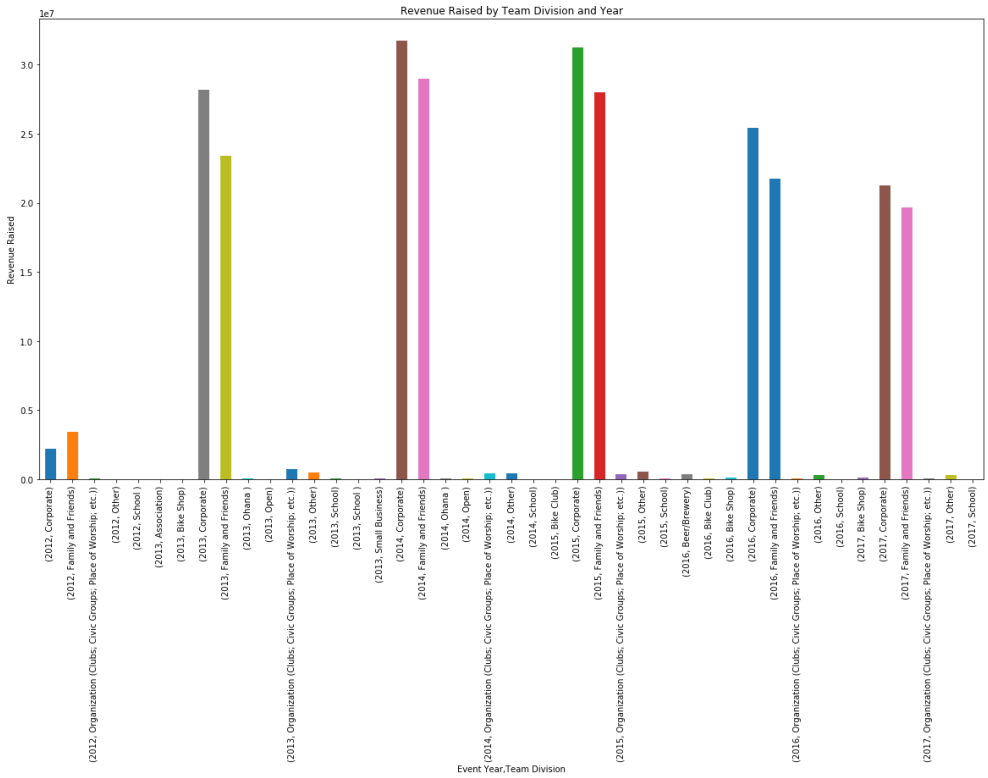
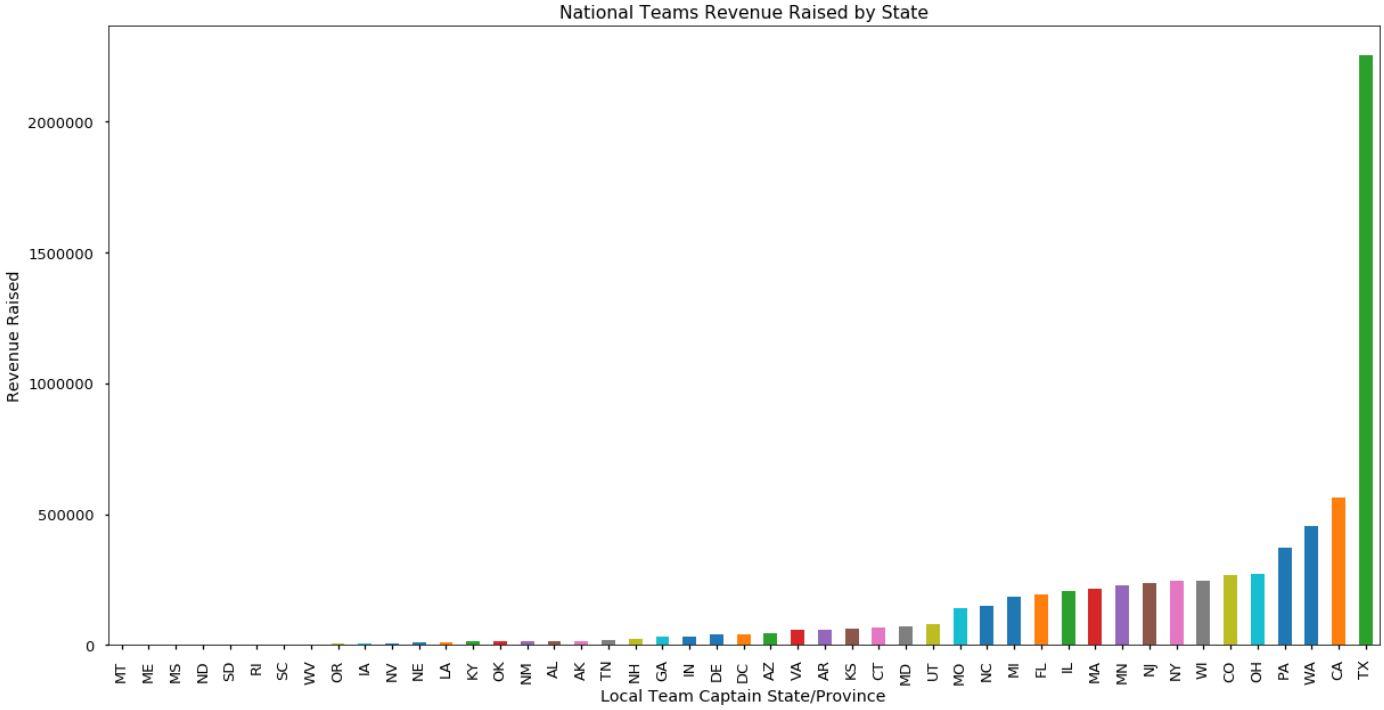
Finally, ‘Corporate’ division bike teams do generate more revenue raised than ‘Family and Friends’ but the gap between them is converging. The following chart depicts Bike Teams Revenue Raised by Team Division and Year.



National Bike Teams

National bike team data was examined as well. Texas, California, Washington, Pennsylvania, and Ohio were the home states of the top 5 respective total revenues raised between 2013 and 2017. Specifically, national bike teams from Texas raised $2,256,020.09 during the period which eclipsed California’s total of $562,691.09. The following chart shows the total revenues raised by national teams by home state of the team captain from 2013 to 2017. A complete list of national bike team revenue raised by state is recorded in the Appendix.



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Of the 810 National Team events, September held 29.51%, 27.16% occurred in June, 14.20% occurred in October, 9.01% occurred in May, 7.90% occurred in August, 6.17% occurred in April, 3.46% in July, 2.47% in March and 0.12% in November. It follows that events held in September generated more revenue than any other month. Overall national bike team revenues raised are strongest in April, June, and September. The complete listing of revenues raised by national bike teams, by month, is recorded in the following table.

Revenues Raised by National Bike Team Events, by Month, 2013-2017

Event Month	Revenue Raised
September	$1,963,260.90
June	$1,634,641.92
April	$1,534,043.70
October	$995,502.77
May	$467,148.64
August	$334,173.25
July	$151,520.86
March	$61,125.43
November	$505.00

National bike teams had nearly twelve members on average with the minimum size team having one member and the largest team having 172 members. National teams raised $8,817.19 on average with the maximum amount raised equaling $230,589.24. Summary statistics for 2013 through 2017 national bike team revenue raised and members are recorded in the following table.

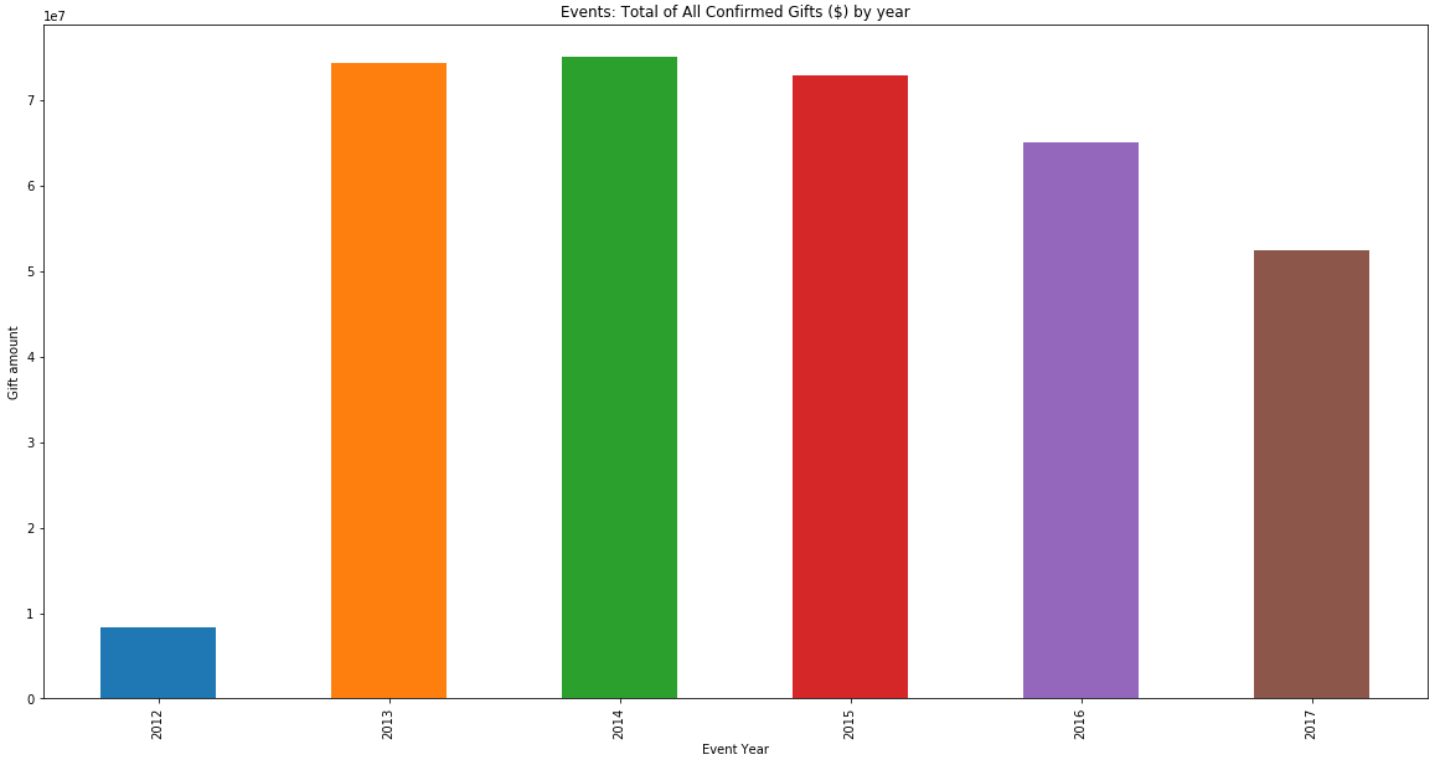
	Revenue Raised	Number of Team Members (local)
count	810	810
mean	$8,817.19	11.84
std	$22,295.01	19.10
min	$0.00	1
25%	$346.25	2
50%	$1,692.50	5
75%	$6,713.75	12
max	$230,589.24	172

Events

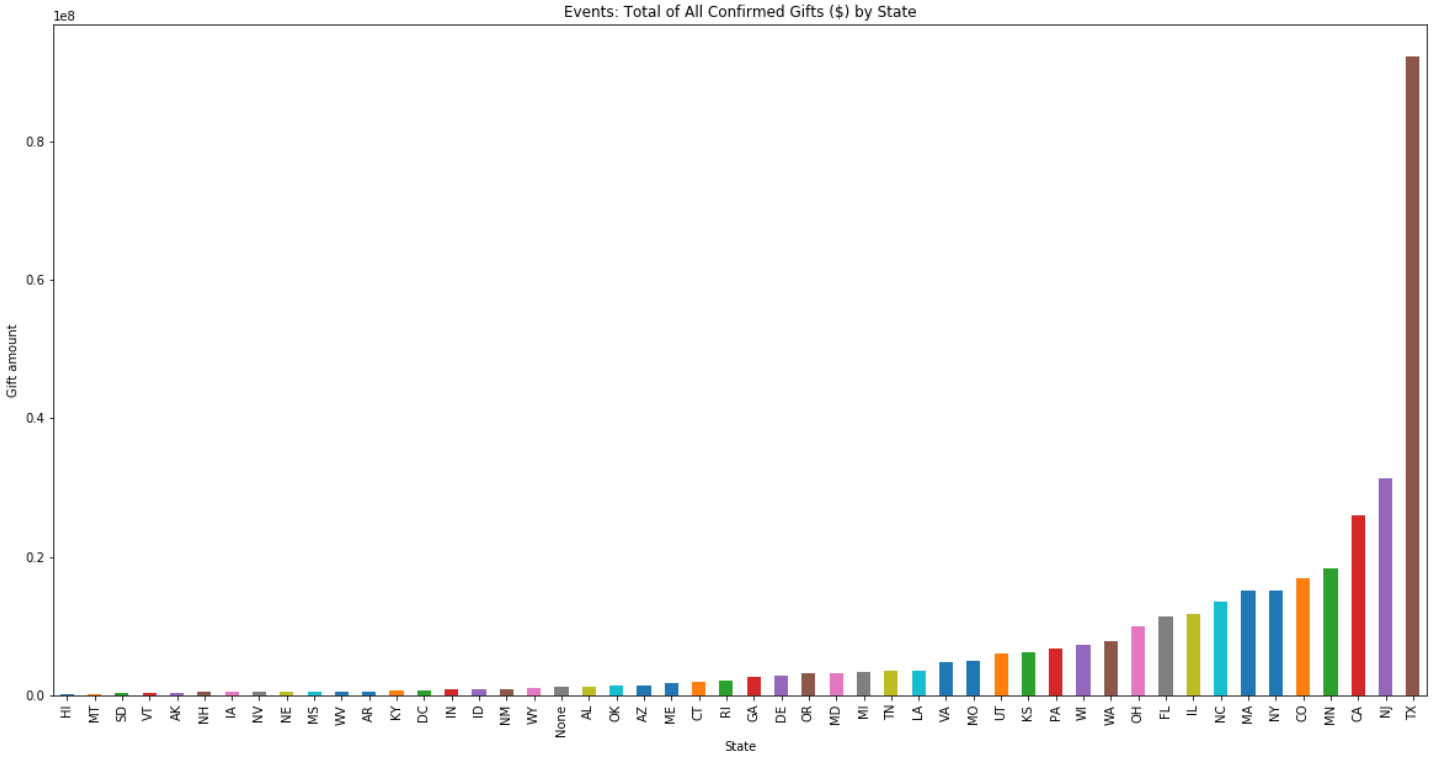
A data set of 524 events was provided for analysis of Bike MS events. The average goal for each event was $859,198.30, with an average of $35,211.03 paid in fees and an average of $664,506.00 in total confirmed gifts. Further, an average of 904.79 active participants and 34.22 inactive participants existed for the events dataset. All summary statistics for Event Goal, Total Fees Paid, Total of All Confirmed Gifts ($), Active Registrations, and Inactive Registrations are reported in the following table.

Summary Statistics of Events, 2013 - 2017					
	Event Goal ($)	**Total Fees Paid**	**Total of All Confirmed Gifts ($)**	**Active Registrations**	**Inactive Registrations**
count	524	524	524	524	524
mean	$859,198.30	$35,211.03	$664,506.00	904.79	34.22
std	$1,992,613.00	$133,428.90	$1,691,521.00	1,670.58	96.80
min	$0.00	$0.00	$0.00	0.00	0.00
25%	$115,000.00	$3,139.48	$58,311.93	162.50	1.00
50%	$295,000.00	$7,843.75	$184,144.60	378.50	5.50
75%	$936,125.00	$27,180.72	$681,904.40	1,065.00	21.25
max	$20,000,000.00	$1,584,950.00	$18,051,600.00	14,871.00	1,063.00

The Total of All Confirmed Gifts ($) also confirmed the existence of declining fundraising results when graphed by year. Event fundraising peaked in 014 and has declined each subsequent year. The following chart depicts Total of All Confirmed Gifts ($) by year.

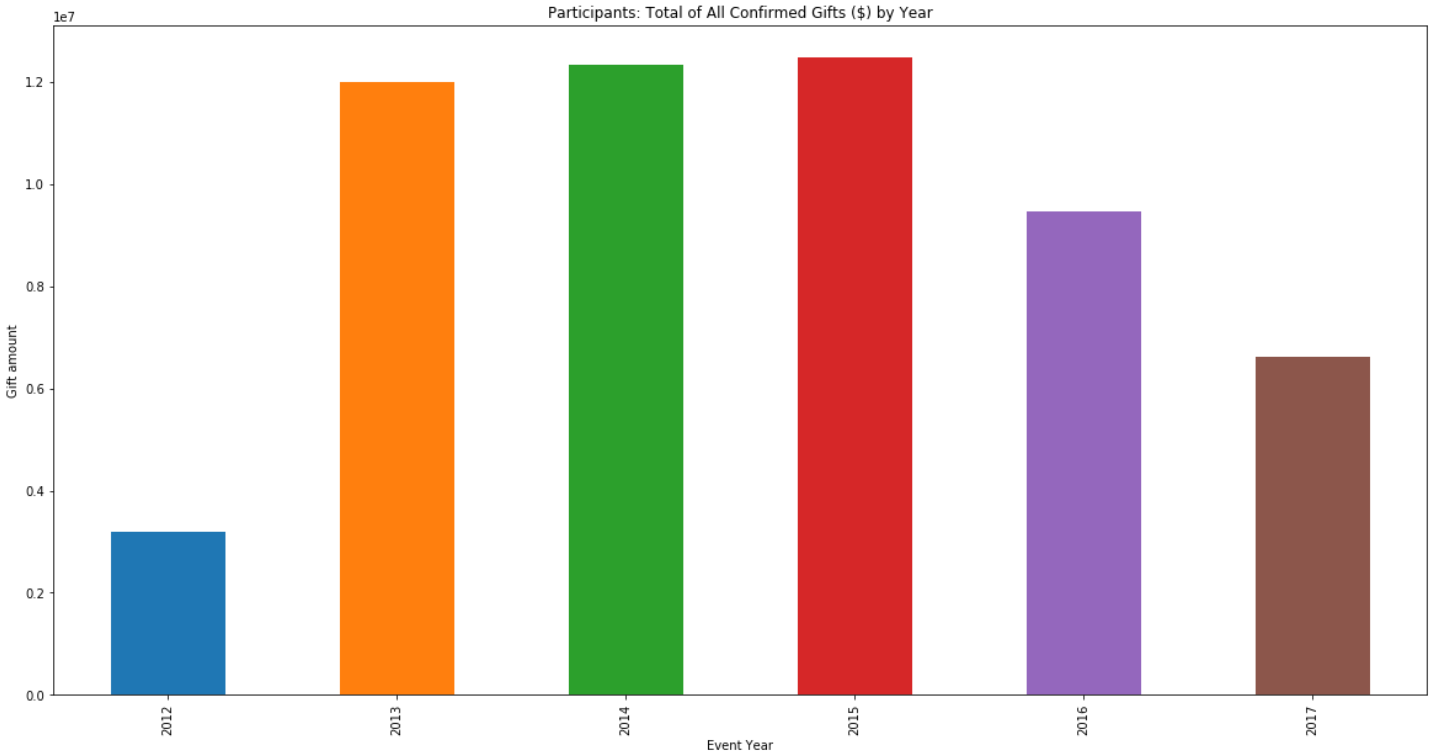


Interestingly, Texas was again host to the highest amount of total confirmed gifts followed by New Jersey, California, Minnesota, and Colorado. The following chart depicts the Total of All Confirmed Gifts by State for events held 2013 through 2017.



Participants

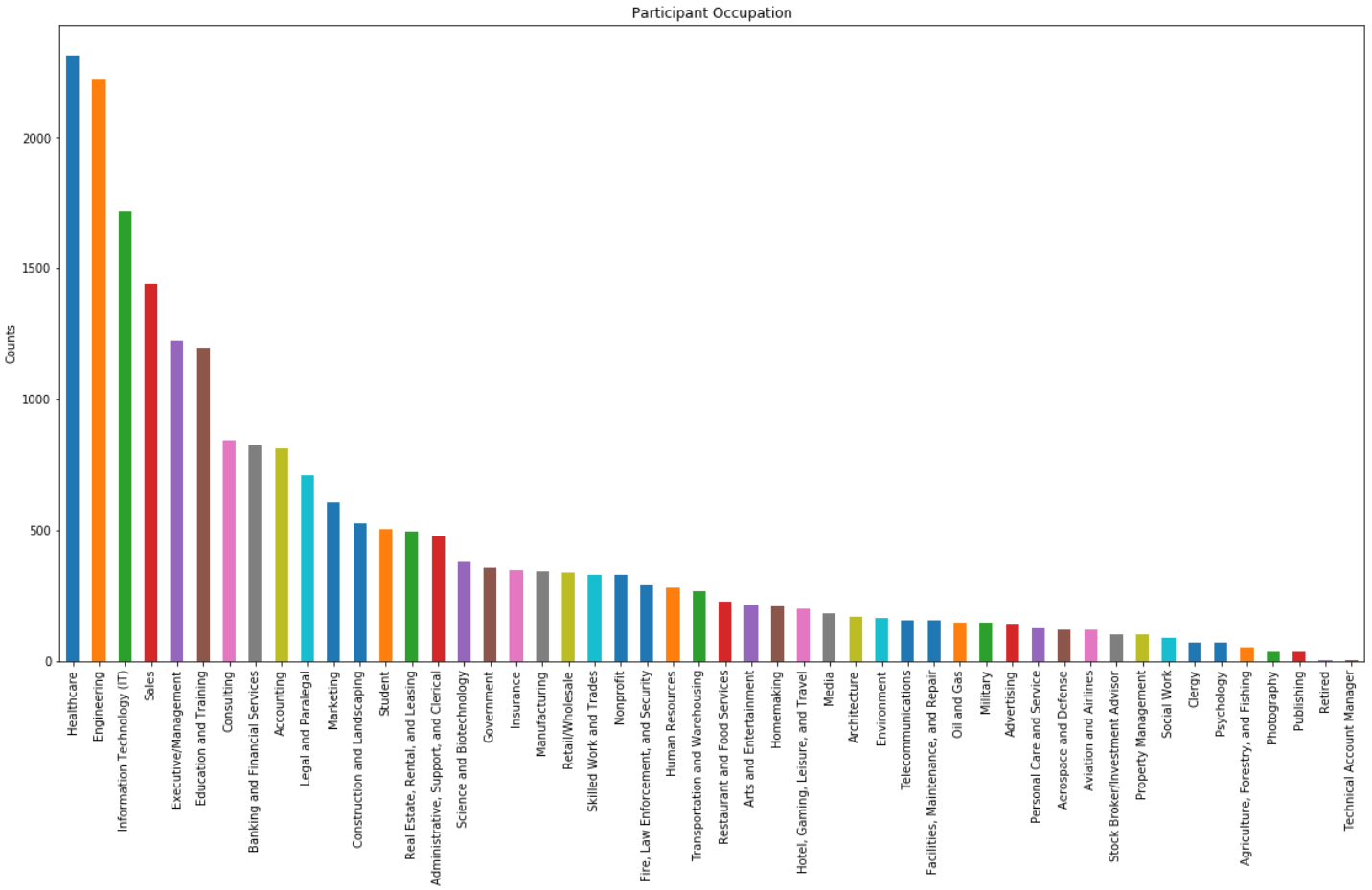
The data set for 2013 through 2017 participants also confirmed the presence of declining revenues and/or gifts. The following chart shows the Total of All Confirmed Gifts ($) for participants by year.



Participants generated an average of $856.56 in confirmed gifts. On average, $127.00 was from the participant and $748.68 from another source. Of note, there were an average of 32.36 emails sent to participants. The

following table contains the summary statistics for Emails Sent, Total of All Confirmed Gifts ($), Total From Participant ($), Total Not From Participant ($), Participant Goal ($), and Suggested Participant Goal ($).

Participants Summary Statistics, 2013 - 2017						
	Emails Sent	**Total of All Confirmed Gifts ($)**	**Total From Participant ($)**	**Total Not From Participant ($)**	**Participant Goal ($)**	**Suggested Participant Goal ($)**
count	65,499	65,499	65,499	65,499	65,499	65,499
mean	32.36	$856.56	$127.00	$748.68	$1,359.18	$726.22
std	269.05	$2,490.75	$492.65	$2,403.30	$84,475.20	$391.79
min	0.00	$0.00	$0.00	$0.00	$0.00	$0.00
25%	0.00	$200.00	$0.00	$0.00	$300.00	$300.00
50%	0.00	$400.00	$35.00	$340.00	$500.00	$900.00
75%	6.00	$800.00	$150.00	$701.00	$1,001.00	$1,075.00
max	27,354.00	$203,791.00	$50,093.00	$203,791.00	$21,474,836.47	$5,000.00

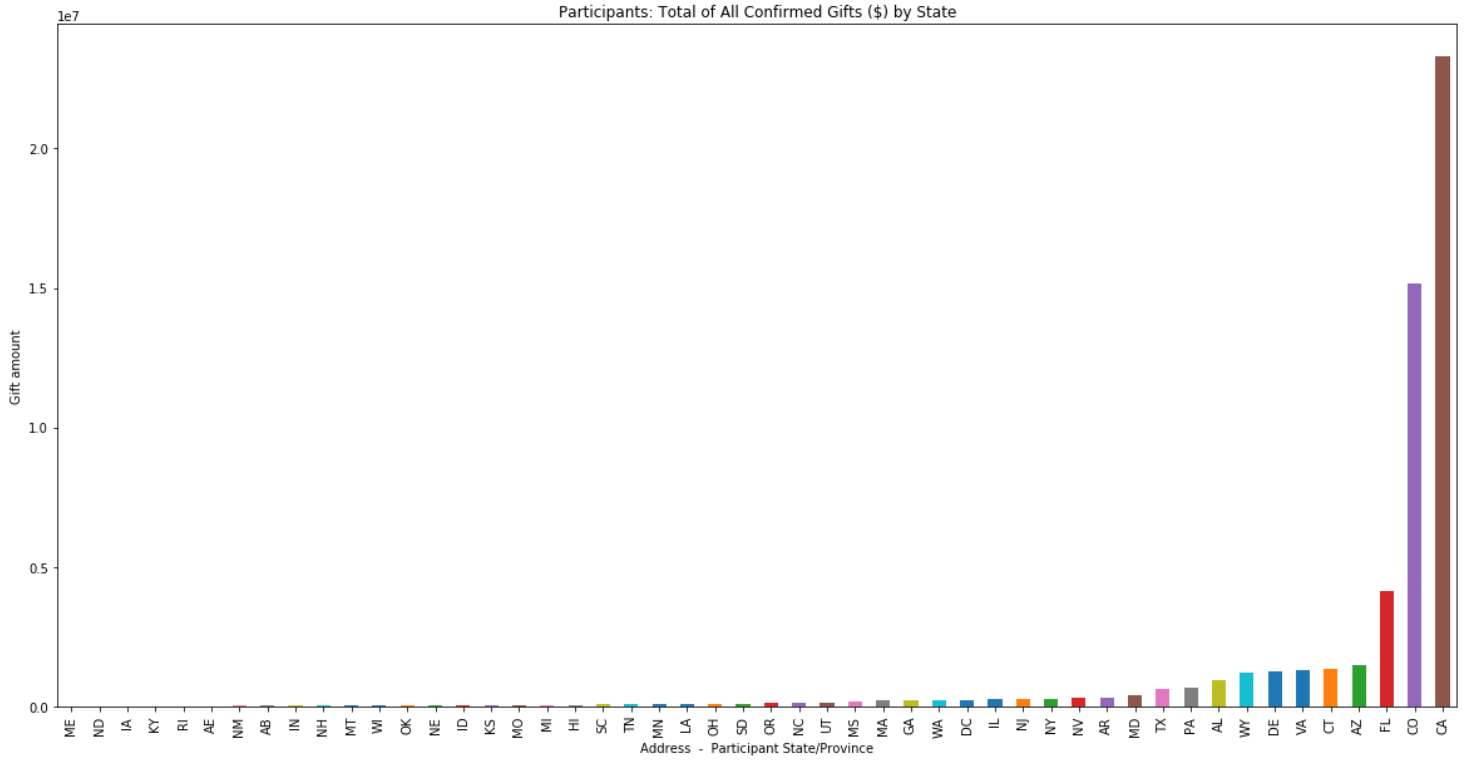


The seven largest participant occupations by year and total of all confirmed gifts are shown in the table below. The Appendix contains a complete listing of participation occupation by year and total confirmed gift amount.

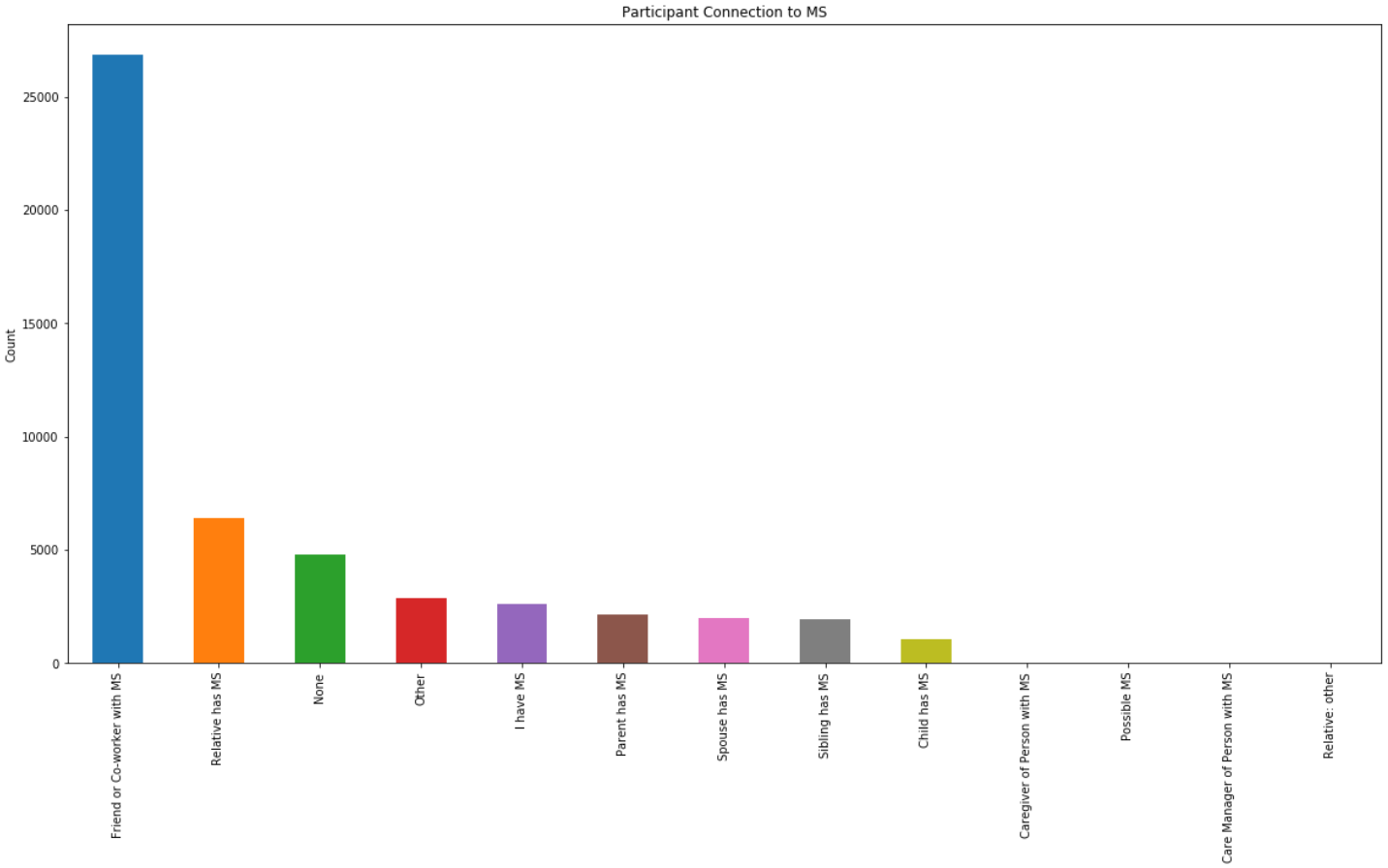
Participants Occupation by Year and Total of All Confirmed Gift ($)

Occupation	2013	2014	2015	2016	2017	Grand Total
Engineering	$456,374.71	$537,343.27	$478,919.37	$449,985.70	$398,437.34	$2,321,060.39
Healthcare	$435,681.65	$382,890.20	$373,307.24	$377,016.66	$275,246.84	$1,844,142.59
Executive/Management	$377,943.13	$373,954.91	$300,286.70	$293,053.68	$221,119.92	$1,566,358.34
Sales	$328,339.00	$323,374.85	$309,457.82	$303,443.44	$267,385.18	$1,532,000.29
Information Technology (IT)	$275,593.63	$276,699.82	$289,836.03	$287,386.87	$197,507.25	$1,327,023.60
Consulting	$236,908.30	$221,782.01	$248,167.88	$224,704.91	$173,950.27	$1,105,513.37
Education and Training	$236,958.57	$212,514.05	$214,377.45	$179,963.52	$150,621.02	$994,434.61

For participants, Texas was outside of the top ten highest amount of total confirmed gifts. The top total gifts by state belonged to California, Colorado, Florida, Arizona, and Connecticut, respectively. The following chart depicts the Total of All Confirmed Gifts by State for participants during 2013 through 2017.

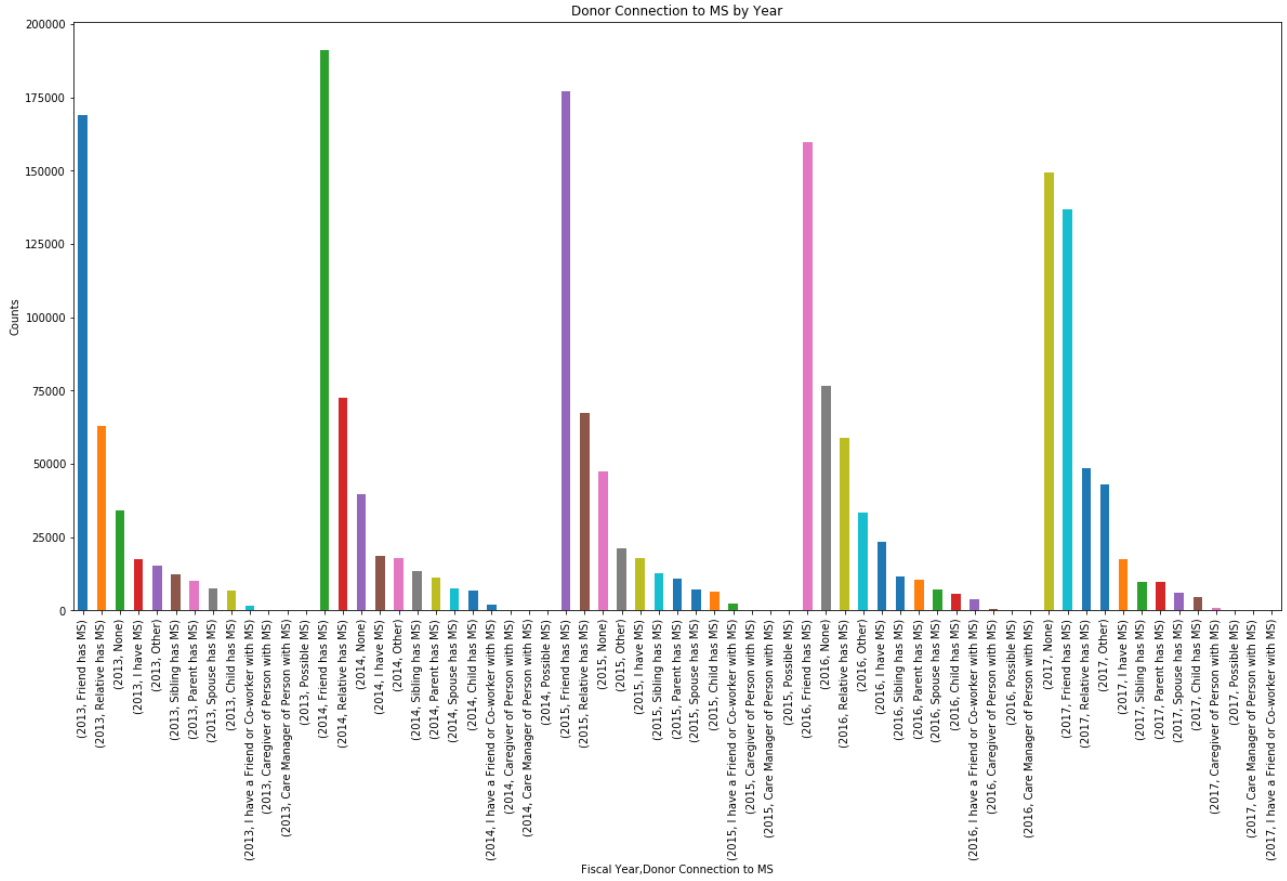


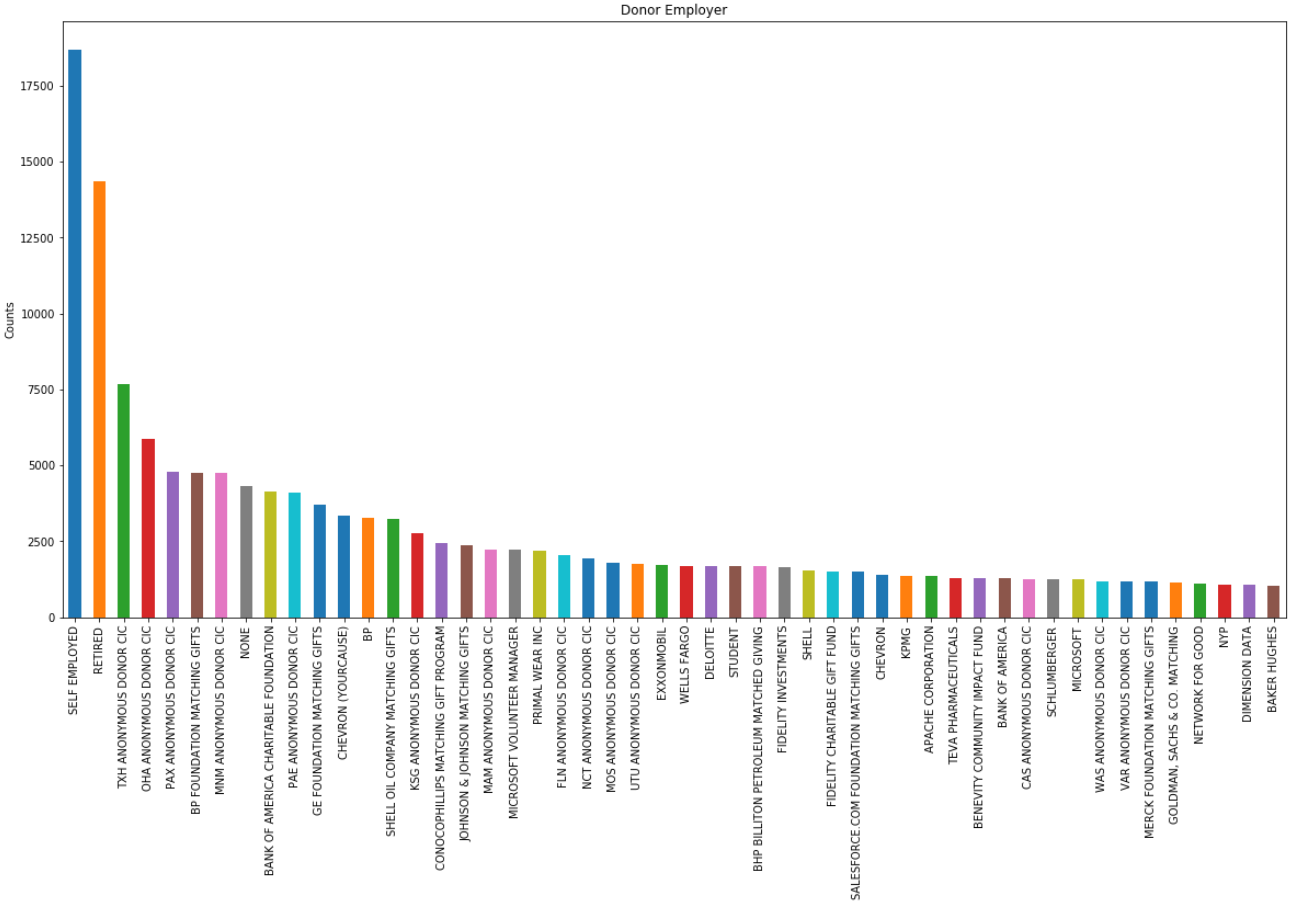
Participants were most often a friend or co-worker or relative to someone with MS. The following chart shows participant connection to MS from largest to smallest association.



Donations

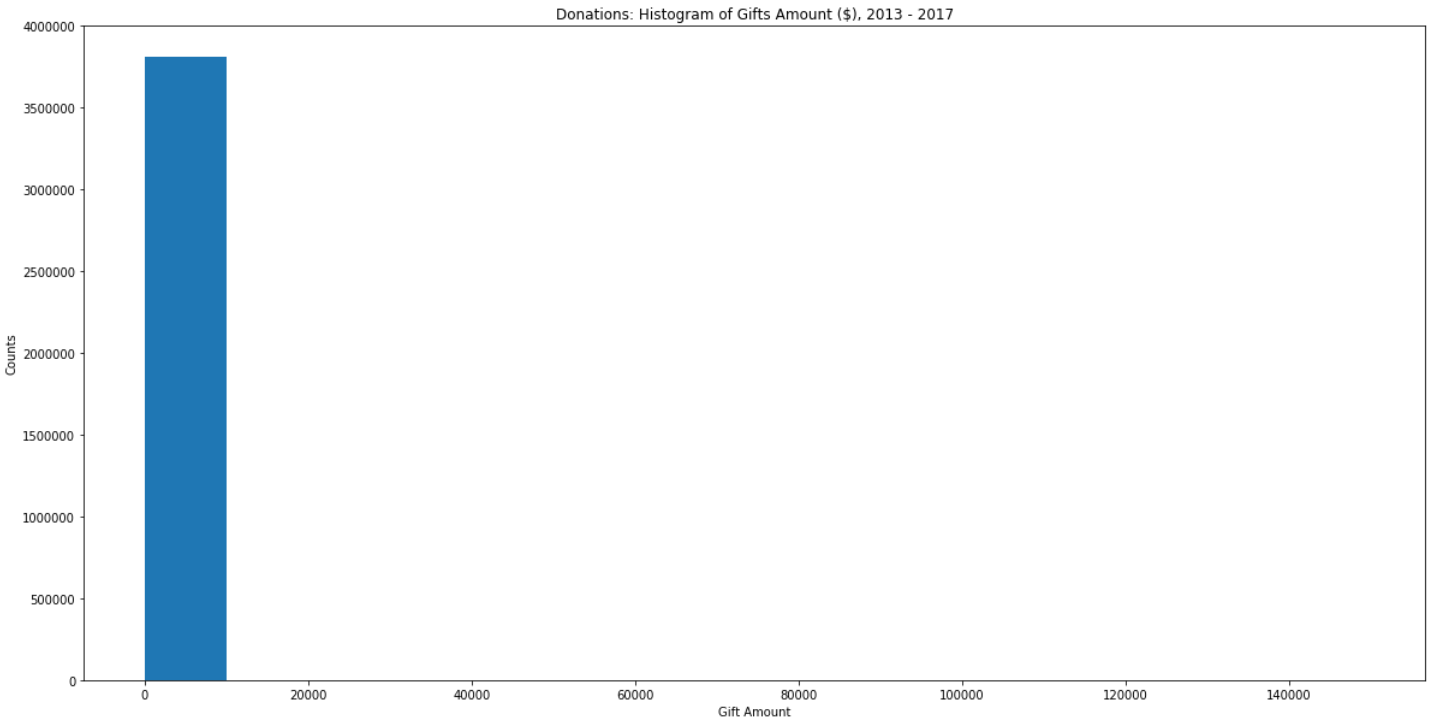
On average, 3,807,372 donors gave $91.77 with a maximum gift of $149,175. The top quartile of donors gave over $100 and the bottom quartile of donors gave up to $25. The largest connection to MS for donors was "Friend has MS" followed by "Relative has MS." The largest employer for donors was self employed followed by retired and several gifting mechanisms. This information is depicted in the following two charts.





Donations is a peculiar data set in that there are patterns to the data that appear to exist independently of the included variables. First, little correlation exists in the dataset. There are only a handful of correlations above

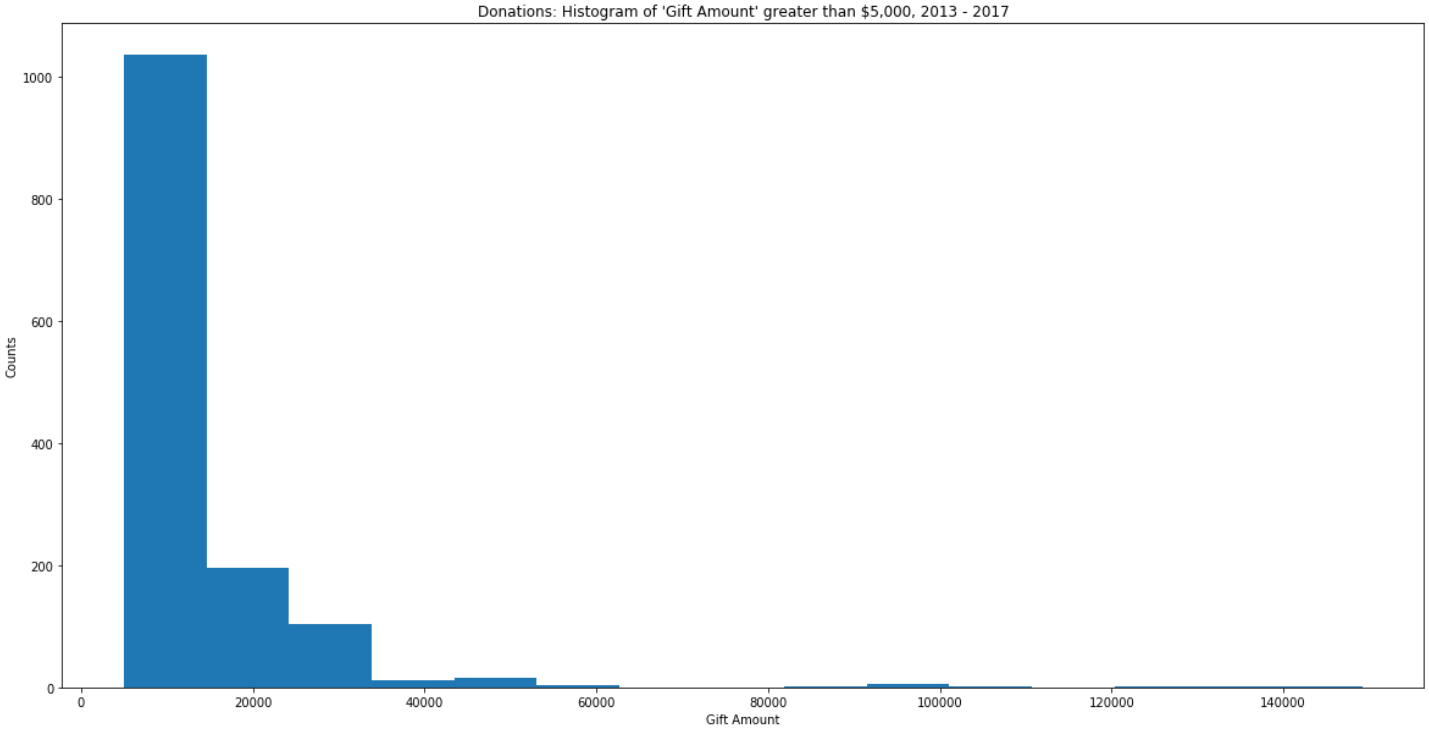
0.75. They are as follows: Event ID with Fiscal Year (0.97), Offline with Check (0.90), Online with Credit Card (0.97). Given that Event ID is derived from the year and checks are very commonly used to donate in person and credit cards similarly are typically utilized to donate online, none of these are informative. The real insight is that none of the variables are highly correlated to Gift Amount. The largest correlation value is 0.07 for Check. Simply put, the variables in the dataset have little or no relationship with the amount given by donors. Second, donations are mostly small gifts with a few very large gift. The following histogram depicts all gift amount. This chart clearly demonstrates the volume of small gifts is so disproportionate to the volume of large gifts that the scale cannot register any columns except the small gifts.



Splitting gifts amounts into subsets does paint a picture of how gifts are broken down. There were 1,377 gifts above 5,000, which is 0.0362% of the 3,807,372 total gifts given. On average gifts above $5,000 were $12,900.46. For gifts more than $5,000, the following summary statistics exist.

count	1,377
mean	$12,900.46
std	$12,193.04
min	$5,001.00
25%	$7,200.00
50%	$10,000.00
75%	$14,500.00
max	149,175.00

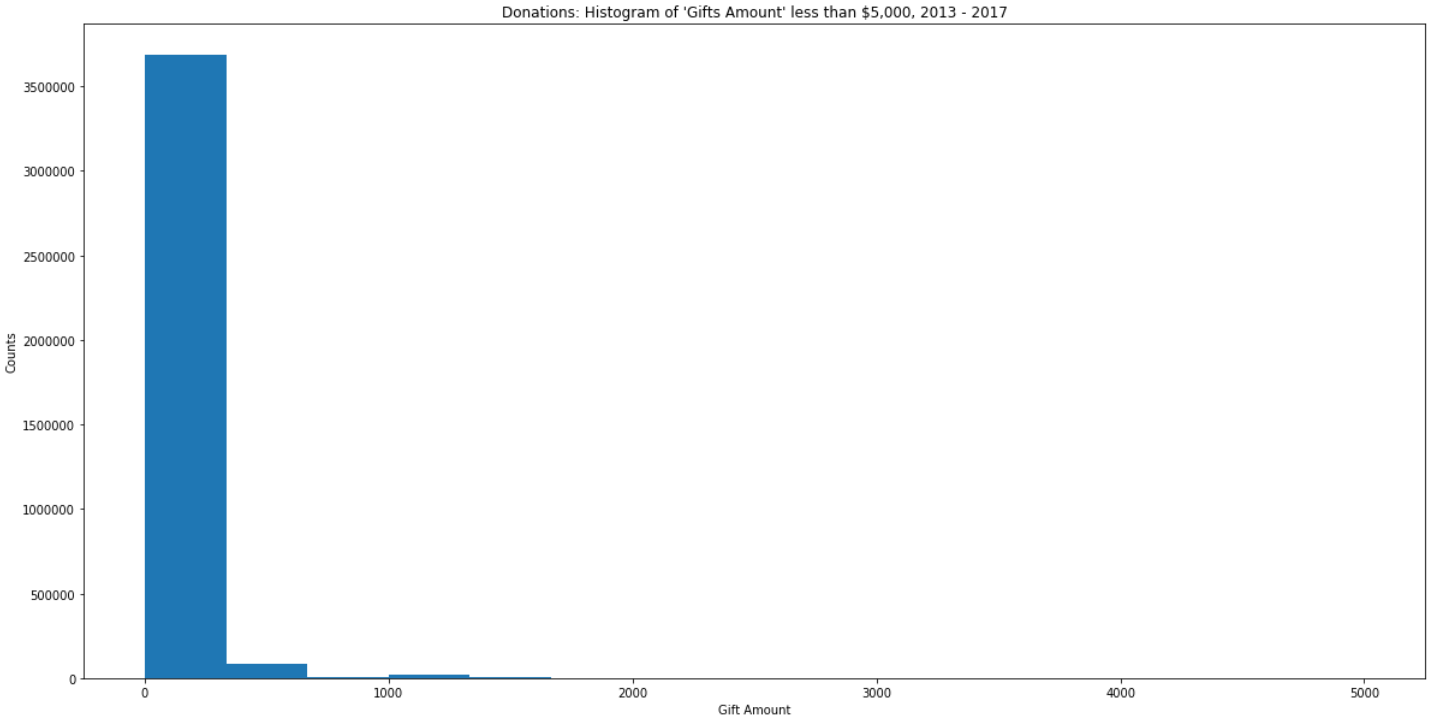
The following chart depicts a histogram of the gift amounts over $5,000.



Of course, the remaining 3,805,995 donations were equal to or below $5,000. On average gifts below $5,000 were $87.13. For gifts less than $5,000, the following summary statistics exist.

count	3,805,995
mean	$87.13
std	$181.00
min	$0.00
25%	$25.00
50%	$50.00
75%	$100.00
max	$5,000.00

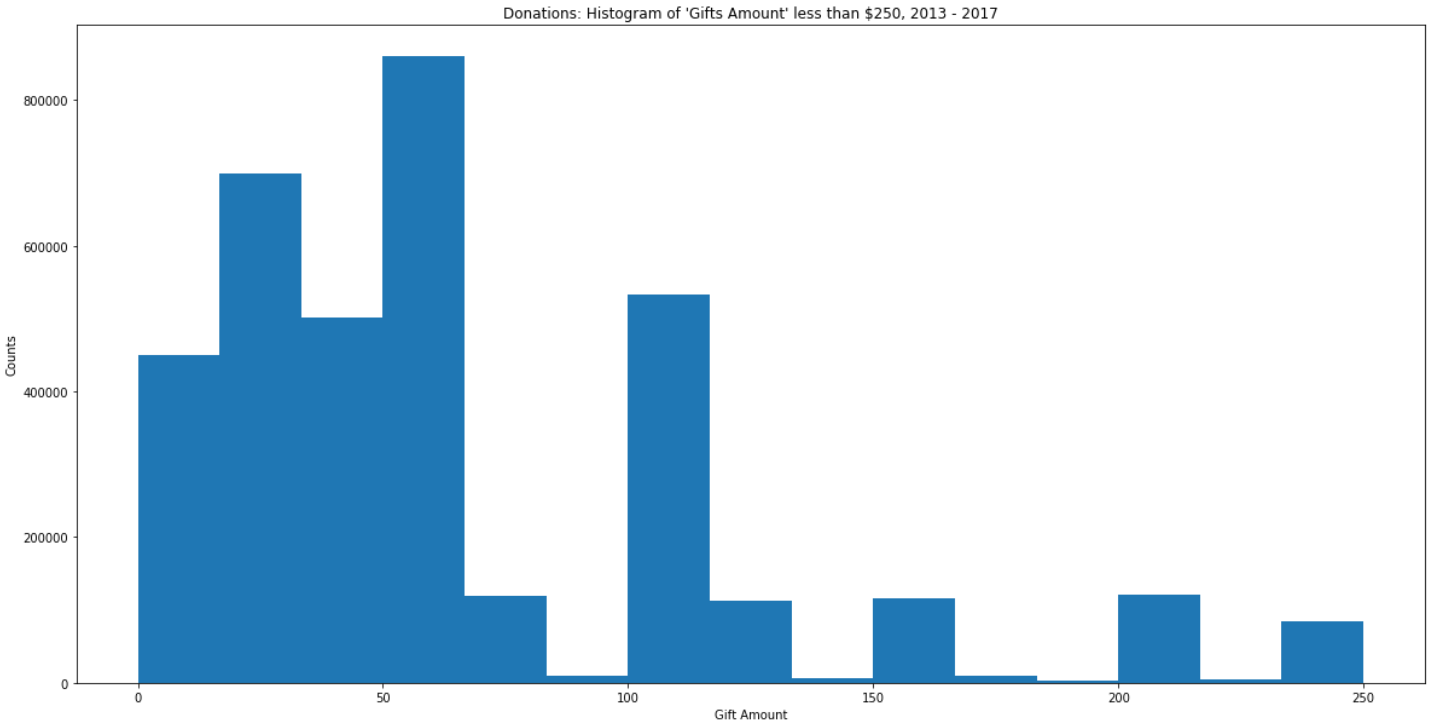
The following chart depicts a histogram of the gift amounts under $5,000. From this chart, it is easy to determine that overwhelming majority of gifts are still much smaller.



There were 3,630,004 donations less than or equal to $250. On average gifts less than or equal to $250 were $62.05. For gifts less than $250, the following summary statistics exist.

count	3,630,004
mean	$62.05
std	$54.47
min	$0.00
25%	$25.00
50%	$50.00
75%	$100.00
max	$250.00

The histogram of gifts less than or equal to $250 tells a very informative story. Multiple peaks exist at common value amounts. This indicates that $250, $200, $150, $100, $50, and $25 are very common gift amounts. In fact, $250, $200, $150, $100, $50, and $25 make up 2.16%, 3.07%, 2.89%, 13.71%, 18.38, and 10.81% of the total number of gifts given, respectively. Collectively, that is 51.02% of all gifts given. The histogram is shown below.



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Modeling
All data provided were found to contain some errors with the most common were misaligned columns due inaccurate characters dividing data (e.g. “2016(0001502456” instead of “2016,0001502456”). Additional errors resulted from typos and errors in data entry. Next entries were standardized to utilize the same values for categories (e.g. “Wife/Husband has MS” changed to “Spouse has MS”). Finally, dummy variables were created for categorical data with one variable dropped to avoid the dummy trap.

All regressions were run utilizing OLS with correlations calculated in order to identify the most likely variables to include in each model.

Bike Teams:

- y = 'Team Total Confirmed ($)'
- X = 'Number of Participants’, 'Total Fees Paid’, 'Total Online Gifts($)’, 'Total Offline Confirmed Gifts($)’, 'Team Goal($)’, 'Total Confirmed Gifts in Team History($)’, 'Previous Event Fiscal Year’, 'Fiscal Year’, 'Association’, 'Beer/Brewery’, 'Bike Club’, 'Bike Shop’, 'Corporate’, 'Family and Friends’, 'Open’, ’Org Groups’, 'Other’, 'School', 'Small Business’ plus a constant
- Left out 'Ohana' for team division, 'Total Offline Confirmed Gifts($)’, and 'Total Offline Unconfirmed Gifts($)' to account for dummy trap
- Adjusted R^2 of 0.954

OLS Regression results indicated the following variables were significant at the 95% level.

Variable	coef	std err	t	P>t	[0.025	0.975]
Number of Participants	63.7908	3.192	19.982	0	57.534	70.048
Total Fees Paid	-0.8732	0.044	-19.812	0	-0.96	-0.787
Total Online Gifts	1.1929	0.005	251.979	0	1.184	1.202
Total Confirmed Gifts in Team History	0.0899	0.001	63.649	0	0.087	0.093
Previous Event Fiscal Year	-0.2813	0.042	-6.729	0	-0.363	-0.199
Previous Event Confirmed Gifts	-0.0392	0.003	-13.425	0	-0.045	-0.033
Beer/Brewery	-7,886.078	2333.761	-3.379	0.001	-12500	-3311.82
Corporate	-344.6836	140.408	-2.455	0.014	-619.888	-69.479

From the regression results the Number of Participants has the largest positive impact on the Team Total Confirmed ($). In the number of participants increases by one then the Team Total Confirmed should increase by $63.79. If a team in listed as Beer/Brewery in the team division, the Team Total Confirmed value is expected to decrease by $7,886.08 and a team listed as Corporate in the team division is expected to have a Team Total Confirmed value that is $344.68 less.

National Bike Teams:

All Revenues Raised more than 16,265 were eliminated from the forecast due to the 1.5(IQR) plus upper bound outlier identification method.

- y = 'Revenue Raised'
- F(x) = Number of Team Members (local)", 'Event Month', 'Event Year', 'Relative has MS', 'None', 'No Connection', 'Has MS', 'Parent has MS', 'Spouse has MS', 'Child has MS', 'Sibling has MS','TX', 'PA', 'NJ', 'CA', 'MN', 'NY', 'FL', 'MA', 'IL', 'MI', 'OH', 'NC', 'WA', 'CO', 'MO', 'UT', 'MD', 'VA', 'CT', 'AZ', 'GA', 'WI', 'KY', 'KS', 'TN', 'AL', 'AR', 'DE', 'NH', 'DC', 'IN', 'OK', 'IA', 'AK', 'RI', 'RI', 'NM', 'NE', 'NV', 'OR', 'MS', 'SD', 'WV', 'LA', 'ME', 'SC', 'MT', and a constant
- Left out 'Other' for connection to MS, and 'ND' for state to account for dummy trap
- Adjusted R^2 of 0.406

OLS Regression results indicated the following variables were significant at the 95% level.

Variable	coef	std err	t	P>t	[0.025	0.975]
Number of Team Members (local)	318.3032	15.77	20.184	0	287.336	349.271
CA	1,110.44	556.066	1.997	0.046	18.495	2202.384
MA	1,234.746	593.198	2.082	0.038	69.886	2399.606
IL	1,723.29	621.099	2.775	0.006	503.641	2942.939
CO	2,504.49	820.546	3.052	0.002	893.188	4115.792
NH	3,845.486	1263.075	3.045	0.002	1365.192	6325.779

From the regression results events held in New Hampshire (NH) have the largest positive impact on Revenue Raised, followed by Colorado (CO), Illinois (IL), Massachusetts (MA) and California (CA). Specifically having an event in New Hampshire increases revenue raised by $3,845.47 with events in Colorado, Illinois, Massachusetts and California increasing revenue raised by $2,504.49, $1,723.29, $1,234.77, and $1,110.44 respectively. The Number of Team Members (Local) also had positive impact on the Revenues Raised by gaining $318.30 for one additional team member.

Events:

- y = 'Total of All Confirmed Gifts($)'
- X = 'Event Month', 'Event Year', 'Active Registrations', 'Teams', 'Average Team Size', 'AK', 'AL', 'AR', 'AZ', 'CA', 'CO', 'CT', 'DC', 'DE', 'FL', 'GA', 'HI', 'IA', 'ID', 'IL', 'IN', 'KS', 'KY', 'LA', 'MA', 'MD', 'ME', 'MI', 'MN', 'MO', 'MS', 'MT', 'NC', 'NE', 'NH', 'NJ', 'NM', 'NM', 'None', 'NY', 'OH', 'NV', 'MT', 'WY', OK', 'OR', 'PA', 'RI', 'SD', 'TN', 'TX', 'UT', 'Emails Sent' plus a constant
- Left out 'ND' for state, 'Event Day', 'Fiscal Year', 'Inactive Registrations', "Event Goal($)", 'Total Fees Paid', and 'Total Online Gifts($)', to account for dummy trap
- Adjusted R^2 of 0.982

OLS Regression results indicated the following variables were significant at the 95% level.

Variable	**coef**	**std err**	**t**	**P>t**	**[0.025**	**0.975]**
Event Month	20,460	8124.398	2.519	0.012	4497.712	36400
Active Registrations	507.8615	37.617	13.501	0	433.945	581.778
Teams	-5,283.18	324.45	-16.283	0	-5920.72	-4645.64
Average Team Size	-5,874.94	1211.376	-4.85	0	-8255.28	-3494.59
CO	371,400	110000	3.39	0.001	156000	587000
DE	224,700	104000	2.155	0.032	19800	430000
FL	-288,400	74200	-3.885	0	-434000	-143000
GA	-479,800	128000	-3.749	0	-731000	-228000
MA	162,500	64000	2.537	0.011	36600	288000
UT	403,500	114000	3.532	0	179000	628000
Emails Sent	23.0523	0.855	26.961	0	21.372	24.732

Regression results indicated that events held in colder states, UT, MA, DE, and CO had positive impacts on the Total of All Confirmed gifts, whereas events in warmer states, GA and FL had negative impacts on the Total of All Confirmed Gifts. Having the event in Utah, Colorado, Delaware and Massachusetts increased the Total of All Confirmed Gifts by $403,500, $371,400, $224,700, and $162,500, respectively. An event held in Georgia was expected to decrease Total of All Confirmed Gifts by and $479,800 and in Florida would decrease it by $288,400.

Further, increasing Active Registrations by one would increase the Total of All Confirmed Gifts by $507.86. Sending one more email would increase the Total of All Confirmed Gifts by $23.05. Both the number of Teams and the Average Team Size had negative impacts on the Total of All Confirmed Gifts with an increase of one team member on average decreasing Total of All Confirmed Gifts by $5,874.94 and adding another team decreasing it by $5,283.18.

Participants:
Correlation was calculated and examined to identify the most plausible variables that may explain the dependent variable, “Total of All Confirmed Gifts.” Total Not From Participant (0.975548993), Number Not From Participant (0.580539693), Total From Participant (0.362671763), Yes (Is Team Captain, 0.140899282), Number From Participant (0.134223094), and Emails Sent (0.102248768) were the only correlations above 0.10 with “Total of All Confirmed Gifts.”

The data were examined for outliers and several were found. Total of All Confirmed Gifts in excess of 1,700 were eliminated from the forecast due to 1.5(IQR) plus the upper quartile calculations. Further, initial model results identified 2,706 observations were the Total Not From Participant exceeded the Total of All Confirmed Gifts in violation of their definitions and resulted in overestimation. These occurrences were dropped.

- y = 'Total of All Confirmed Gifts($)'
- X = "Total Not From Participant($)",'Event Month’, ‘Event Year’, ‘Healthcare’, ‘Engineering’, ‘Information Technology (IT)’, ‘Sales', 'Executive/Management', 'Education and Training’, ‘Consulting’, ‘Banking and Financial Services’, ‘Accounting’, ‘Legal and Paralegal’, ‘Marketing’, ‘Construction and Landscaping’, ‘Real Estate, Rental, and Leasing’, ‘Administrative, Support, and Clerical’, ‘Science and Biotechnology’, ‘Government’, ‘Insurance’, ‘Manufacturing’, ‘Retail/Wholesale’, ‘Skilled Work and Trades’, ‘Nonprofit’, ‘Fire, Law Enforcement, and Security’, ‘Human Resources’, ‘Transportation and Warehousing’, ‘Restaurant and Food Services’, ‘Arts and Entertainment’, ‘Homemaking’, ‘Hotel, Gaming, Leisure, and Travel’, ‘Media’, ‘Architecture’, ‘Environment’, ‘Facilities, Maintenance, and Repair’, ‘Telecommunications’, ‘Oil and Gas’, ‘Military’, ‘Advertising’, ‘Personal Care and Service’, ‘Aviation and Airlines’, ‘Aerospace and Defense’, ‘Stock Broker/Investment Advisor’, ‘Property Management’, ‘Social Work’, ‘Clergy’, ‘Psychology’, ‘Agriculture, Forestry, and Fishing’, ‘Photography’, ‘Publishing’, ‘Technical Account Manager’, ‘Retired’, ‘Relative has MS’, ‘None’, ‘I have MS’, ‘Parent has MS’, ‘Spouse has MS’, ‘Child has MS’, ‘Sibling has MS’, ‘TX', 'PA', 'NJ', 'CA', 'MN', 'NY', 'FL', 'MA', 'IL', 'MI', 'OH', 'NC', 'WA', 'CO', 'MO', 'UT', 'MD', 'VA', 'CT', 'AZ', 'GA', 'WI', 'KY', 'KS', 'TN', 'AL', 'AR', 'DE', 'NH', 'DC', 'IN', 'OK', 'IA', 'AK', 'RI', 'RI', 'NM', 'NE', 'NV', 'OR', 'MS', 'SD', 'WV', 'LA', 'ME', 'SC’, ‘MT’, ‘Family and Friends’, ‘Corporate', 'Other’, ‘Organization (Clubs; Civic Groups; Place of Worship; etc.)’, ‘Female" plus a constant
- Left out 'Male' for gender, 'Student' for occupation, 'Other' for connection to MS, 'Other' for occupation, 'School' for team division, and 'ND' for state to account for dummy trap
- Adjusted R^2 0.957

All significant regression results are reported in the following table. Of note, Participants from New Hampshire could increase the Total of All Confirmed Gifts from a participant by $285 with Nebraska increasing it by $188.32. The remaining states with a positive impact on a participant’s Total of All Confirmed Gifts are Virginia, Connecticut, Colorado, and Texas. Participants with no connection to MS are expected to have a Total of All Confirmed Gifts that is $376.15 higher. Other positive connections to MS include Spouse has MS, I have MS, and Relative has MS. The occupation with the largest positive impact on a participant’s Total of All Confirmed Gifts is Consulting with Legal/Paralegal, Real Estate, Executive/Management and Healthcare all associated with positive increases.

OLS Regression results indicated the following variables were significant at the 95% level.

Variable	coef	std err	t	P>t	[0.025	0.975]
const	-7,923.917	2960.002	-2.677	0.007	-13700	-2122.307
Total Not From Participant($)	1.0402	0.001	1157.568	0	1.038	1.042
Event Year	3.9525	1.468	2.692	0.007	1.075	6.83
Healthcare	30.1557	10.599	2.845	0.004	9.382	50.93
Executive/Management	40.3635	14.362	2.81	0.005	12.213	68.514
Consulting	123.2248	17.148	7.186	0	89.615	156.835
Legal and Paralegal	80.7371	18.671	4.324	0	44.141	117.333
Marketing	-41.1358	20.339	-2.023	0.043	-80.999	-1.272
Real Estate, Rental, and Leasing	50.0844	22.214	2.255	0.024	6.544	93.625
Hotel, Gaming, Leisure, and Travel	-82.6985	34.902	-2.369	0.018	-151.107	-14.29
Relative has MS	38.8319	6.676	5.817	0	25.747	51.916
None	376.1461	183.727	2.047	0.041	16.041	736.251
I have MS	47.7738	10.134	4.714	0	27.911	67.637
Spouse has MS	53.0393	11.591	4.576	0	30.322	75.757
TX	52.9261	23.346	2.267	0.023	7.169	98.684
CO	58.2961	16.481	3.537	0	25.994	90.598
VA	71.4748	20.784	3.439	0.001	30.739	112.211
CT	65.2014	18.436	3.537	0	29.067	101.335
NH	284.995	69.66	4.091	0	148.461	421.529
NE	188.3212	68.572	2.746	0.006	53.92	322.723
Family and Friends	23.6098	5.397	4.375	0	13.032	34.187
Other	32.159	9.689	3.319	0.001	13.169	51.149
Female	-33.9082	4.177	-8.118	0	-42.095	-25.721

Donations:
Given that such a large percentage of gift amounts were below $250 and that the maximum gift in the dataset equaled $149,175, the data were examined for outliers using the 1.5(IQR) plus/minus the upper/lower quartile method. Gift amounts in excess of 212.50 were eliminated from the forecast.

Initial regression results yielded an adjusted R^2 of 0.037. Gifts in the data are given as online or offline. The data were examined to determine if differences existed between the two methods that could be modeled. Both online and offline donations exhibited the fixed amounts pattern initially observed in preliminary results. For both methods, the 25% quartile was $25, the 50% quartile was $50 and the 75% quartile was $100. Gifts were then grouped amount buckets to identify those donors most associated with each bucket.

The obvious buckets to start with are 25, 50 and 100. Of course, a bucket will be needed for those donors not giving one of three fixed amounts. With a minimum gift amount of 0 and a max gift of 149,175, it would be best to have additional buckets both above 100 and below 25. As a result, the following buckets index was developed for modeling as the new dependent variable.

- Less than 25 (0+(gift amount/25))
- 25 to 50 (1+(gift amount/50))
- 51 to 100 (2+(gift amount/100))
- Over 100 (3+(gift amount/150000))

Please note that 150,000 was used to index the last bucket since the max gift was $149,170. This index calculation helped identify buckets and to create a weight to indicate if a donor is more likely to give 25 or 50 than a simple '1' would provide.

The gift bucket index isolated the lump sums preferred by donors, but only increased the Adjusted R^2 to 0.042. There is very little explained by the data that can shine light on the amount of money donors give. As a result, the model for donations was not pursued further.

Takeaways:

The greatest growth opportunities for new corporate teams appear to be Consulting, Legal and Paralegal, Real Estate, Rental, and Leasing, Executive/Management, and Healthcare. By scanning the local market for each event and undertaking efforts to recruit and solidify participation with key firms in each of these industries, it would be easy to pair these opportunities with specific markets and events. The seven largest participant occupations by year and total of all confirmed gifts are shown in the table below.

Participants Occupation by Year and Total of All Confirmed Gift ($)

Occupation	2013	2014	2015	2016	2017	Grand Total
Engineering	$456,374.71	$537,343.27	$478,919.37	$449,985.70	$398,437.34	$2,321,060.39
Healthcare	$435,681.65	$382,890.20	$373,307.24	$377,016.66	$275,246.84	$1,844,142.59
Executive/Management	$377,943.13	$373,954.91	$300,286.70	$293,053.68	$221,119.92	$1,566,358.34
Sales	$328,339.00	$323,374.85	$309,457.82	$303,443.44	$267,385.18	$1,532,000.29
Information Technology (IT)	$275,593.63	$276,699.82	$289,836.03	$287,386.87	$197,507.25	$1,327,023.60
Consulting	$236,908.30	$221,782.01	$248,167.88	$224,704.91	$173,950.27	$1,105,513.37
Education and Training	$236,958.57	$212,514.05	$214,377.45	$179,963.52	$150,621.02	$994,434.61

Similarly, the following table identifies the top 20 largest contributing occupations by grand total raised.

Participant Occupation	Total of All Confirmed Gifts($)
Engineering	$2,321,060.39
Healthcare	$1,844,142.59
Executive/Management	$1,566,358.34
Sales	$1,532,000.29
Information Technology (IT)	$1,327,023.60
Consulting	$1,105,513.37
Education and Training	$994,434.61
Real Estate, Rental, and Leasing	$862,481.49
Banking and Financial Services	$833,121.55
Legal and Paralegal	$792,718.61
Accounting	$649,308.95
Marketing	$623,237.58
Government	$602,098.09
Arts and Entertainment	$549,087.76
Construction and Landscaping	$369,074.49
Insurance	$347,820.69
Administrative, Support, and Clerical	$338,780.50
Science and Biotechnology	$307,457.41
Manufacturing	$305,952.97
Student	$281,723.64

Historically, Consulting, Legal and Paralegal, and Real Estate, Rental, and Leasing have been solid but not top shelf fundraisers. However, modeling revealed them to have a large positive impact on a participant's confirmed gift total. These three occupations represent a key opportunity for additional fundraising efforts.

Mills, Jeff

It is difficult to associate a specific impact that individual competitors are having on Bike MS events. In general, Bike MS is not performing as well raising funds then it did just a few years prior. Not only has the number of charitable competitors increased, but also the methods and way funds are raised has shifted during this same period.

Digital/Social Acquisition

When sorted by number of registrations, the three primary channels are direct, organic search, and social. Specifically, direct traffic represents nearly 72% of registrations for both individuals and teams. The following table outlines these three channels registration performance for 4/01/2016 through 12/14/2017.

Default Channel Grouping	Bike Registrations - Individuals	% of Total	Bike Registration - Teams	% of Total
Direct	55,491	71.73%	55,274	71.83%
Organic Search	13,091	16.92%	12,959	16.84%
Social	1,718	2.22%	1,709	2.22%
Total	77,357	0.00%	76,948	0.00%

However, when examining the funnel results for the website, some interesting observations emerge.

Bike Registrations - Individual with Payment:

- Funnel started with 32,513 visitors to the registration page,
- 22,606 made it to the payment screen,
- 6,172 exited (27.3%) at payment page.

Bike Registration - Join Team from Team Page:

- Funnel started with 76,545,
- 66,726 (87.27%) left at the Get started/Register page,
- 7,401 made it to the payment screen where 1,688 exited (22.81%).

Bike Registration - Join a Team:

- Funnel started with 39,176
- 18,407 (53.13%) left after searching for a team,
- Either didn't find a specific team or any team to join.

So, while direct and organic searches are the greatest sources of registrants, potential registrants are either not finding what they are looking for or abandon the process when asked to pay. The loss of nearly 67,000 potential registrants from team pages should be a priority for improvement. Further, payment incentives/options should be explored to help convert those who abandon their registration at payment. Finally, efforts should be made to help align individuals with teams and encourage joining.

Facebook is by far the most effective for referring traffic. Over 41% referral registrants for both team and individuals come arrive via Facebook channels. Additionally, couponfollow.com is a top 5 referral site for the period. Perhaps discounts and financial incentives would help those abandoning registrations at payment. Referral Traffic with 1% or more of total referral registrations between 4/01/2016 and 12/14/2017 are shown in the following table.

Source	Bike Registrations Individuals	% of Total	Rank	Bike Registrations Team	% of Total	Rank
Total	3,932			3,900		
facebook.com	1,158	29.45%	1	1,152	29.54%	1
outlook.live.com	562	14.29%	2	562	14.41%	2
l.facebook.com	295	7.50%	3	293	7.51%	3
m.facebook.com	162	4.12%	4	161	4.13%	4
couponfollow.com	102	2.59%	5	101	2.59%	5
mg.mail.yahoo.com	78	1.98%	6	78	2.00%	6
bfapps1.boundlessfundraising.com	68	1.73%	7	65	1.67%	7
nmssdev.convio.net	60	1.53%	8	60	1.54%	8
retailmenot.com	52	1.32%	9	52	1.33%	9
matchinggifts.com	39	0.99%	10	39	1.00%	10

Potential Insight Recommendations:

When requesting help, NMSS identified an increasingly competitive space for charitable dollars. However, the listed competitors of concern seemed to ignore changes to the competitive landscape itself. First and foremost, time has become even more scarce to Americans. Bike MS events and fundraising take a considerable amount of time and resources. While such a commitment may have been reasonable a few years ago, more and more people are being forced to give up large time demanding activities. Further, there appears to be a fatigue associated with the number of events held each year. Bike Team data suggested this possibility and it holds to reason that past participants may be leaving due to similar reasons.

Additionally, the charitable landscape has seen many evolutions in recent years with the phenomenon such as the ALS Ice Bucket Challenge and Susan G Komen partnerships with professional sports and utilization highly adaptive and flexible marketing techniques. Not only does this shift coincide with the plateau of cycling in America, but it also aligns with the beginning of Bike MS fundraising troubles. An examination of the NMSS donation website reveals a bland and unappealing call to action. Contrasted to Susan G Komen and St. Jude Children's Research Hospital, there are dramatic differences.

Finally, St. Jude, Susan G Komen, and the Ice Bucket Challenge all leverage personal connection as part of their fundraising efforts. The data show that the most common connection to MS is friend or co-worker followed by relative has MS, yet little of Bike MS fundraising efforts leverage this association. Instead the focus appears to center on events and one-time gifts.

Bike MS should build their call to action around the individual with MS that exists in a person's life. Perhaps even showcasing some "Heroes with MS" who continue to exhibit courage and perseverance in their struggle with the disease. Shifting the focus from disease centered to person centered will help increase the priority fundraising plays in a potential or returning registrants life. Building on this concept, NMSS could select a team for each event that is centered around a specific person or existing team, such as Audrey's Heroes. In this way, individuals would have a team to join, a specific person to support, and a stronger connection to returning in the future.

Appendix:

National Bike Teams

National Bike Teams Total Revenue Raised by State, 2013-2017

State	Total Revenue Raised
TX	$2,256,020.09
CA	$562,691.09
WA	$453,207.54
PA	$370,261.91
OH	$272,444.02
CO	$268,800.42
WI	$247,361.16
NY	$245,359.49
NJ	$235,311.22
MN	$229,862.83
MA	$214,485.10
IL	$207,404.29
FL	$192,501.73
MI	$185,296.32
NC	$149,613.10
MO	$139,631.11
UT	$78,683.72
MD	$69,954.00
CT	$65,809.99
KS	$64,796.60
AR	$59,335.53
VA	$56,460.00
AZ	$47,630.26
DC	$40,271.50
DE	$39,407.14
IN	$33,107.00
GA	$31,175.00
NH	$25,356.01
TN	$19,873.60
AK	$16,862.64
AL	$15,255.00
NM	$15,084.20
OK	$14,809.16
KY	$13,220.00
LA	$11,200.00
NE	$10,604.00
NV	$7,308.00
IA	$6,747.00
OR	$6,405.00
WV	$3,470.00
SC	$2,675.00
RI	$1,770.00
SD	$1,560.00
ND	$1,155.00
MS	$1,000.00
ME	$505.00
MT	$380.00

Participants Occupation by Year and Total of All Confirmed Gift ($)

Occupation	2013	2014	2015	2016	2017	Grand Total
Engineering	$456,374.71	$537,343.27	$478,919.37	$449,985.70	$398,437.34	$2,321,060.39
Healthcare	$435,681.65	$382,890.20	$373,307.24	$377,016.66	$275,246.84	$1,844,142.59
Executive/Management	$377,943.13	$373,954.91	$300,286.70	$293,053.68	$221,119.92	$1,566,358.34
Sales	$328,339.00	$323,374.85	$309,457.82	$303,443.44	$267,385.18	$1,532,000.29
Information Technology (IT)	$275,593.63	$276,699.82	$289,836.03	$287,386.87	$197,507.25	$1,327,023.60
Consulting	$236,908.30	$221,782.01	$248,167.88	$224,704.91	$173,950.27	$1,105,513.37
Education and Training	$236,958.57	$212,514.05	$214,377.45	$179,963.52	$150,621.02	$994,434.61
Real Estate, Rental, and Leasing	$137,056.07	$165,821.81	$167,766.69	$205,275.20	$186,561.72	$862,481.49
Banking and Financial Services	$179,531.57	$185,709.18	$180,120.40	$158,490.57	$129,269.83	$833,121.55
Legal and Paralegal	$159,923.85	$185,595.20	$173,106.67	$167,528.32	$106,564.57	$792,718.61
Accounting	$145,138.63	$136,149.86	$152,787.35	$133,573.94	$81,659.17	$649,308.95
Marketing	$125,586.59	$134,371.45	$138,066.43	$125,068.99	$100,144.12	$623,237.58
Government	$96,590.40	$182,295.20	$121,723.87	$111,472.79	$90,015.83	$602,098.09
Arts and Entertainment	$124,508.91	$209,935.03	$60,920.10	$107,609.43	$46,114.29	$549,087.76
Construction and Landscaping	$82,990.75	$76,964.08	$81,619.22	$68,022.00	$59,478.44	$369,074.49
Insurance	$72,596.32	$75,007.32	$75,486.87	$73,816.68	$50,913.50	$347,820.69
Administrative, Support, and Clerical	$76,462.39	$72,661.63	$82,598.42	$60,657.91	$46,400.15	$338,780.50
Science and Biotechnology	$82,715.50	$62,134.33	$59,510.69	$57,656.50	$45,440.39	$307,457.41
Manufacturing	$67,967.67	$65,424.08	$64,783.33	$57,716.81	$50,061.08	$305,952.97
Student	$65,223.68	$69,191.27	$59,679.73	$48,499.65	$39,129.31	$281,723.64
Retail/Wholesale	$66,462.92	$56,306.00	$74,816.62	$52,248.60	$29,319.00	$279,153.14
Nonprofit	$54,084.66	$58,429.63	$55,953.19	$51,532.02	$36,043.44	$256,042.94
Hotel, Gaming, Leisure, and Travel	$57,736.18	$115,214.94	$35,700.29	$16,868.00	$23,781.61	$249,301.02
Human Resources	$50,184.58	$57,238.46	$45,250.26	$54,900.26	$28,599.66	$236,173.22
Skilled Work and Trades	$42,055.19	$43,899.98	$46,625.32	$42,634.59	$30,620.00	$205,835.08
Oil and Gas	$24,451.00	$48,051.12	$58,403.12	$41,724.79	$32,086.16	$204,716.19
Media	$40,661.91	$37,059.52	$39,648.74	$37,221.90	$43,200.16	$197,792.23
Restaurant and Food Services	$32,544.01	$46,282.50	$38,691.68	$47,616.15	$24,682.28	$189,816.62
Fire, Law Enforcement, and Security	$46,412.24	$37,077.35	$39,683.57	$24,930.73	$27,913.64	$176,017.53
Homemaking	$40,939.83	$41,047.10	$31,364.07	$32,416.99	$18,821.27	$164,589.26
Transportation and Warehousing	$29,169.52	$32,231.42	$27,165.05	$45,182.55	$24,584.46	$158,333.00
Telecommunications	$36,441.86	$32,724.11	$30,045.11	$28,074.83	$26,398.41	$153,684.32
Architecture	$32,963.01	$32,576.00	$24,192.50	$27,776.50	$28,054.56	$145,562.57
Environment	$37,501.91	$32,659.66	$28,165.68	$20,105.72	$14,501.43	$132,934.40
Facilities, Maintenance, and Repair	$31,712.53	$25,466.15	$20,758.52	$17,696.82	$24,474.00	$120,108.02
Property Management	$15,735.00	$19,832.00	$25,019.00	$25,943.00	$25,400.99	$111,929.99
Advertising	$16,900.00	$20,105.00	$22,959.53	$23,425.28	$24,189.82	$107,579.63
Personal Care and Service	$26,331.06	$20,515.53	$24,930.61	$17,714.58	$12,978.00	$102,469.78
Military	$18,206.07	$23,543.88	$20,672.07	$15,127.07	$9,428.16	$86,977.25
Stock Broker/Investment Advisor	$13,771.00	$16,545.00	$16,935.00	$19,080.00	$17,814.00	$84,145.00

Clergy	$15,824.00	$25,225.00	$22,354.51	$13,279.00	$4,145.00	$80,827.51
Aviation and Airlines	$13,188.84	$22,704.52	$14,217.74	$17,838.31	$8,175.00	$76,124.41
Agriculture, Forestry, and Fishing	$14,567.36	$16,453.00	$17,145.00	$10,100.00	$8,895.00	$67,160.36
Aerospace and Defense	$17,300.79	$14,745.00	$12,835.00	$7,946.05	$9,900.04	$62,726.88
Psychology	$8,511.00	$14,145.00	$10,828.00	$12,330.00	$11,750.00	$57,564.00
Social Work	$8,788.04	$12,029.59	$6,300.00	$12,750.00	$5,553.00	$45,420.63
Publishing	$8,542.30	$6,754.04	$4,250.00	$6,325.00	$4,593.16	$30,464.50
Photography	$4,450.00	$3,789.00	$2,160.00	$2,720.00	$1,165.00	$14,284.00
Technical Account Manager				$555.00	$1,580.00	$2,135.00
Retired	$300.00	$1,000.00				$1,300.00
Grand Total	**$4,569,828.13**	**$4,863,470.05**	**$4,429,592.44**	**$4,217,007.31**	**$3,274,667.47**	**$21,354,565.40**

Luminate Pages Referral Traffic, 10 or More of Registrations, 20160401-20171214

Source	Bike Registrations Individuals	% of Total	Rank	Bike Registrations Team	% of Total	Rank
Total	3932			3900		
facebook.com	1158	29.45%	1	1152	29.54%	1
outlook.live.com	562	14.29%	2	562	14.41%	2
l.facebook.com	295	7.50%	3	293	7.51%	3
m.facebook.com	162	4.12%	4	161	4.13%	4
couponfollow.com	102	2.59%	5	101	2.59%	5
mg.mail.yahoo.com	78	1.98%	6	78	2.00%	6
bfapps1.boundlessfundraising.com	68	1.73%	7	65	1.67%	7
nmssdev.convio.net	60	1.53%	8	60	1.54%	8
retailmenot.com	52	1.32%	9	52	1.33%	9
matchinggifts.com	39	0.99%	10	39	1.00%	10
couponbirds.com	37	0.94%	11	37	0.95%	11
web.mail.comcast.net	36	0.92%	12	36	0.92%	12
secure3.convio.net	35	0.89%	13	35	0.90%	13
webmail.earthlink.net	31	0.79%	14	31	0.79%	14
mail.aol.com	28	0.71%	15	28	0.72%	15
surveymonkey.com	27	0.69%	16	25	0.64%	16
myemail.constantcontact.com	24	0.61%	17	24	0.62%	17
us-mg5.mail.yahoo.com	21	0.53%	18	20	0.51%	18
ready2rollcycling.com	20	0.51%	19	19	0.49%	20
search.xfinity.com	19	0.48%	20	18	0.46%	21
duckduckgo.com	19	0.48%	21	19	0.49%	19
jira.blackbaud.com	16	0.41%	22	16	0.41%	27
us-mg6.mail.yahoo.com	16	0.41%	23	16	0.41%	26
mail.centurylink.net	16	0.41%	24	16	0.41%	25
emcycling.com	16	0.41%	25	16	0.41%	24
search.tb.ask.com	16	0.41%	26	16	0.41%	23
t.co	16	0.41%	27	16	0.41%	22
bikemsillinois.org	15	0.38%	28	15	0.38%	30
intranet.nmss.org	15	0.38%	29	15	0.38%	29
lm.facebook.com	15	0.38%	30	15	0.38%	28
basecamp.com	14	0.36%	31	14	0.36%	32
mail.verizon.com	14	0.36%	32	14	0.36%	31
mail.google.com	14	0.36%	33	12	0.31%	34
bikebarn.com	13	0.33%	34	13	0.33%	33
mail.yahoo.com	11	0.28%	35	11	0.28%	36
linkedin.com	11	0.28%	36	11	0.28%	35
dontpayfull.com	10	0.25%	37	10	0.26%	43
9promocodes.net	10	0.25%	38	10	0.26%	42
view.email-nmss.org	10	0.25%	39	10	0.26%	41
app.asana.com	10	0.25%	40	10	0.26%	40
webmail.q.com	10	0.25%	41	10	0.26%	39
us.search.yahoo.com	10	0.25%	42	10	0.26%	38
msn.com	10	0.25%	43	10	0.26%	37

Background Information

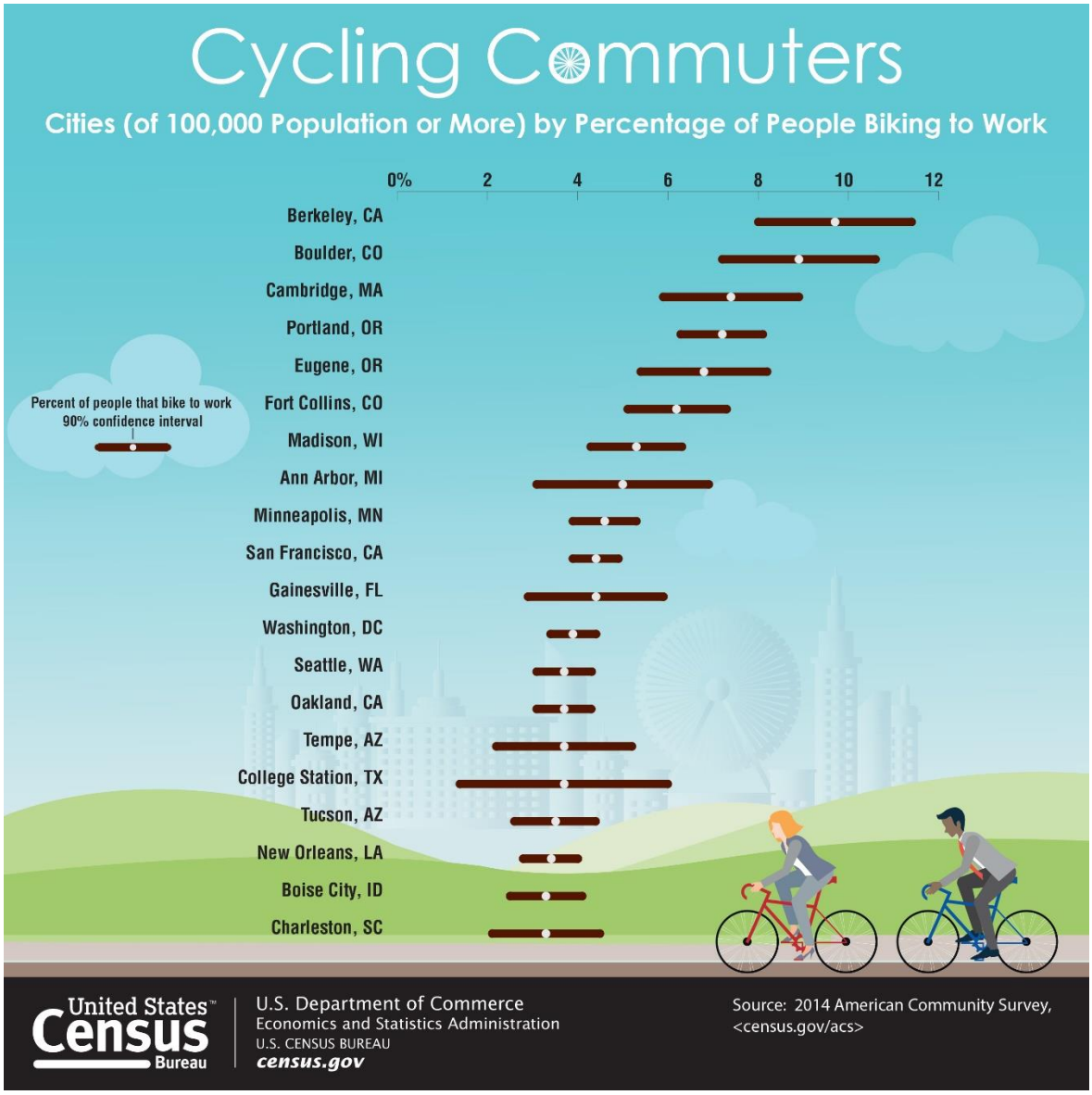
Cycling in America:

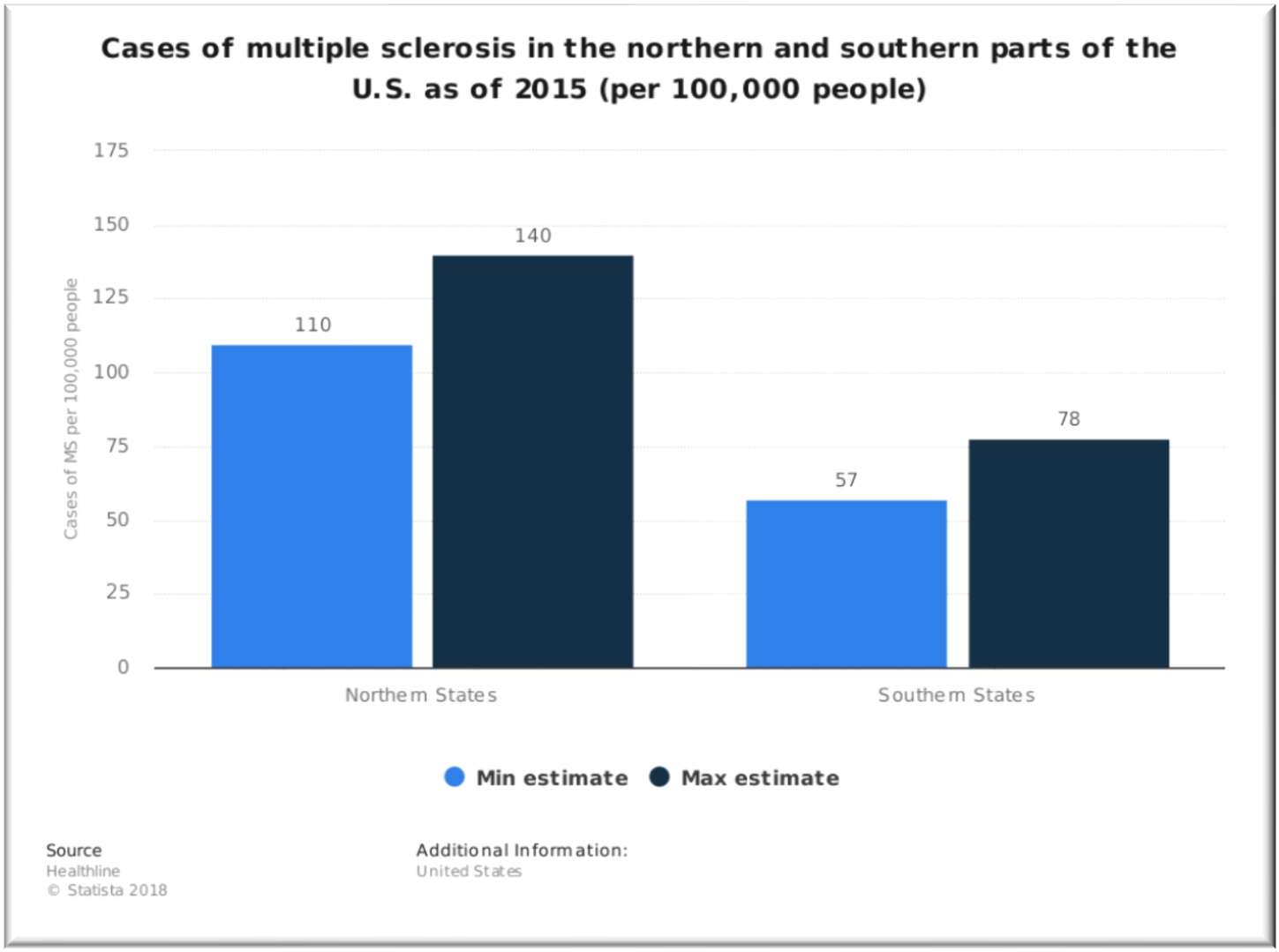
- According to Statista, approximately 12.4% of Americans regularly cycled in 2016.

Statista also reported:

- U.S. cycling sizable increase 2012 to 2014, followed by plateau,
- 66.5 million U.S. cyclists in 2016,
- U.S. cyclists 6 to 17 years old has decreased since 2013,
- U.S. cyclists 18 to 24 years increased its peak of 5.7 million in 2013 and declined since.

Source: https://www.statista.com/topics/1686/cycling/




Cases of multiple sclerosis in the northern and southern parts of the U.S. as of 2015 (per 100,000 people)
175
150
125
100
75
50
25
0
Cases of MS per 100,000 people
110
140
57
78
Northern States
Southern States
Min estimate
Max estimate
Source
Healthline
© Statista 2018
Additional Information:
United States

Mills, Jeff

Project Case Study

Project: 2018 Data Challenges Sponsored by Teradata University Network
All teams will be provided with the same multiple data sets and questions from our non-profit partner: National Multiple Sclerosis Society (NMSS). The teams will analyze the provided data and business questions related to their Bike MS program and presented their findings and results. More details can be found in the attached case study and on the Data Challenge detail page.
National Multiple Sclerosis Society (NMSS) is a non-profit organization based in New York with chapters located throughout the United States. The organization funds research, advocates for social and political change, provides education, and sponsors services that help people with multiple sclerosis and their families.

Business Questions
Bike MS is the National MS Society's largest fundraising campaign, engaging over 70,000 participants to raise $68 million in over 75 rides across the country. It is the largest charity cycling series in the United States.
The rides are typically one- or two-day events that are a reasonable driving distance from metropolitan areas and are fully supported with first aid, mechanics, rest areas, shuttles, and more. When not on the route, activity is centered in a "village" atmosphere where participants have access to vendors, dining, beer gardens, camping (in some locations), team tents, and entertainment. The routes themselves range from 10 to 100 miles per day and cyclists can decide for themselves which route to ride.
The events are team-focused, with teams responsible for 87% of fundraising. Because of participant demographics (mostly male, middle age, higher income earners), we know that Bike MS is an ideal corporate event and that corporate teams of 10 or more cyclists are seven times more valuable than any other kind of team. Companies with a large professional employee base, especially those with a corporate culture of health and wellness – regardless of industry – are key prospects.
Over the years, the charity cycling space has become very crowded with many events vying for the same audience. Bike MS participation and revenue have seen a steady decline since our peak in 2012. While retention is relatively high – over 50% – there are not enough new participants joining the series to reverse the damage caused by attrition. We must increase new participant acquisition.
We know that cyclists join Bike MS because they were asked by someone they know – not us. However, team captains are usually recruited by staff and volunteers early in the event year. Team captains who are effective recruiters are our greatest asset, especially from corporate teams. However, digital marketing efforts are strong in some markets and may make an impact in our acquisition goals.
Last year, we had 74,000 riders and a total of 6,150 teams. Our goal for 2018 is 80,572 riders (40,000 new who have not participated within the last five years), and 6,489 teams.
Teams with 10+ members raise 3x more than teams with fewer than 10 members. In 2017, we had 1,561 teams with 10+ members; 642 of those were corporate 10+ teams. For greatest revenue return, we must attract new corporate teams that will recruit at least 10 members to participate.

Please use the included data, plus external public sources, to answer the following questions:
FIRST PRIORITY: CORPORATE ACQUISITION

- What are the greatest growth opportunities for new corporate teams?
- Can we apply those opportunities to specific rides/markets, especially our biggest events?
- What industries have had the strongest involvement in Bike MS in the last five years?
- What occupations were responsible for most of our fundraising?
- Can we tie together these industries and occupations to identify gaps/opportunities?
- What is the common denominator for our top performing corporate teams? (Is it industry, culture, executive involvement, connection to MS, other?)
- Can we quantify the effect competing events are having in our top markets? Top competitors:
    - Best Buddies

        - HYANNIS PORT June 2, 2018 Boston to Hyannis Port, MA
        - HEARST CASTLE September 8, 2018 San Simeon, CA
        - MIAMI November 16, 2018 Miami, FL
    - Peddle the Cause
        - Louis
        - San Diego
    - Pelatonia – OH
    - PanMass Challenge - Boston
    - ADA – Tour de Cure
    - Jude Children's Research Hospital
    - JDRF Ride to Cure Diabetes
    - Cycle for Life - Cystic Fibrosis Foundation
    - Ride to Recovery
    - Virtual Cycling
    - Athletic Club Stationary Cycling Relays
    - American Cancer Society
    - Leukemia and Lymphoma Society – Team in Training

SECOND PRIORITY: DIGITAL/SOCIAL ACQUISITION

- What are the greatest opportunities for digital marketing investments? Where have we seen the greatest ROI?
- Once someone is registered, what tactics and behaviors drive fundraising, and at what times leading up to the event?
- What behavioral data do you see about usage of our fundraising tools and how it may or may not relate to performance of top fundraisers?
- Despite increasing our digital advertising spend, acquisition continues to trend downward overall. Why? Is it an issue of needing more traffic, better targeting, or a conversion rate issue that needs to be addressed through the registration process? What can we do to reverse the trend?

FINALLY:

- As you studied this data, is there something else that came up as an insight into our operations that the questions above do not capture?

Relevant Documentation (All documents and datasets can be downloaded from CANVAS)

2015 Bike MS Corporate Partnership Analysis.

This report gives some idea of past insights we have looked at for corporate partners/teams, including some of top corporate teams.

Corporate Engagement Bike MS.

This is a sample report done in a single market, Greater Northwest Chapter, looking at value of corporate engagement in that market over a 3-year period, as well as industries and top occupations.

MTM 2.0 for Bike MS.

This document outlines key metrics that we focus on to measure the success of Bike MS. It is helpful information related to why Corporate Teams matter, why team size matters, and illustrated the acquisition challenge over the last 3 years.

Top 20 Ride Based On FY18 Budget.

This is a simple list of the top 20 Bike MS rides and the budgeted revenue.

Data Dictionary

Field Definitions.

This spreadsheet provides column data definitions, separated by tabs for each table in the datasets.

Datasets
All datasets have been compressed to .zip format for easier downloading
Donations.
Contains 2013-2017 Bike Donations.csv
Events.
Contains 2013-2017 Bike Events.csv
Participants.
Contains 2013-2017 Bike MS Participants.csv
Bike Teams.
Contains 2013-2017 Bike Teams.csv
National Teams.
Contains 2013-2017 National Team Activity.xlsx
Affiliates.
Contains Affiliate_Codes.xlsx
Bike MS Digital Advertising Reports.
Contains advertising reports for the 2015-2018 fiscal years.
Google Analytics.
Contains Google Analytics report for the National MS Society website.

Source: http://www.teradatauniversitynetwork.com/.