

Improving Data Collection and Interpretation with Gender Diversity on Campaigns

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## Chapter 1: Introduction

### *TOPIC STATEMENT*

My research topic concerns gender diversity on political teams that leverage big data and analytics on campaigns. Data show women are underrepresented in science, technology, engineering and math (STEM) fields. As technology continues to advance, big data play an increasing role on political campaigns by targeting messages to voters across the political spectrum. If women continue to trail men in tech capabilities, such as big data analytics, women could lose opportunities in formulating campaign strategies and occupying leadership roles.

Gender diversity in political tech consulting is an understudied topic. As influential organizations, companies and thought leaders advocate for gender diversity in STEM fields, it is important to understand if gender diversity can improve the efficacy of the burgeoning field of big data on campaigns.

### *RESEARCH QUESTION*

My research question is: Does gender diversity lead to improved data collection and interpretation, which, in turn, helps make a campaign more successful?

To examine this question, I researched the obstacles to and successes of gender diversity in political tech consulting. I articulated the obstacles and provided reasons, based on my review of studies and reflections of my interviewees, to think that if those

obstacles were removed more systematically and creatively, campaigns would fare better than under homogeneous leadership.

I also proposed gender diversity could lead to higher functioning teams based on a research-informed speculation that campaigns would work better with more diversity.

### *RESEARCH APPROACH*

I conducted qualitative research, and relied heavily on secondary sources and leveraged interviews with political consulting professionals working in the field of technology and data analytics on electoral or advocacy campaigns.

*Secondary research.* I examined academic papers on big data and women political consultants; studies showing that gender diversity improves a business's financial outcomes; opinion-leading commentary on increasing women's advancement professionally; top-tier media coverage reporting on my topic areas, such as the male-dominated tech industry and the use of big data on recent, winning presidential campaigns; and, studies that both identify the hindrances to advancing women and offer solutions to closing the gender gap in STEM fields. My research findings and recommendations are largely supported by the secondary research I conducted.

*Interviewees.* I interviewed five respondents, which included three Democratic-leaning women, one Republican-leaning woman, and one Republican-leaning male. I selected these individuals because they are political consultants, have worked on successful electoral and advocacy campaigns, and are either experts in or are knowledgeable of the use of data analytics on campaigns. I also believed they would have useful insights

into the gender dynamics on campaigns which would help to bolster and further illustrate the secondary research I examined. I expected they would help me better understand whether gender diversity was a factor that helped make a campaign more successful. Therefore, the interviews focused on the gender dynamics on teams and if data collection and interpretation benefited from gender diversity or was harmed by lack of diversity. I set my interviewees' responses in the context of extensive secondary research I read to support my argument.

The small sample size may have been a drawback in my interviewee selection. Time constraints prevented me from speaking with equal numbers of women and men and Republicans and Democrats. Patterns may have been more fully identified with additional professional insights. However, my interviewees' campaign experiences offered an important glimpse into contemporary teams. Their perspectives on the status of women's in political consulting strengthened my findings and recommendations – particularly amid an understudied topic.

### *GUIDING QUESTIONS*

Throughout my research, I reflected on various questions that guided my exploration of gender diversity in political tech on campaigns. First, current studies show the benefits of diverse teams in business. They are more innovative, process facts more carefully, and yield higher financial outcomes; therefore, I wondered if these findings could be applied to political tech and data analytics teams on campaigns.

I was curious if women bring a unique perspective based on their cultural roles and outsider status, as a result of the gender gap across STEM fields, corporate leadership and political fields. Could this perspective sharpen team performance and lead to greater innovation?

Because studies show that women are more comfortable collaborating with a team rather than working alone, I considered if women help foster a team dynamic that is more likely to innovate and produce data that are effective. Lastly, I questioned whether gender diversity propagates diversity across other divides, including race, class, and geographic, among others.

#### *RESEARCH FINDINGS*

My research showed that gender diversity benefits teams and contributes to better campaign data collection and interpretation. Women tend to champion diversity and promote its benefits, which leads to greater team diversity as a whole – beyond gender, including geographic, racial and skill sets. Diverse teams weigh facts more carefully and are more likely to avoid entrenched ways of thinking; therefore, they are prone to more innovative campaign solutions and better problem-solving skills. While my interviewees were reluctant to attribute campaign success completely to gender diversity, all women promoted and supported the notion that diverse teams outperform monolithic ones and managers should strive to build diverse teams.

Studies document that the rise of big data introduced statistical thinking – a STEM capability – into the world of political consulting on a larger, more influential scale. As

big data's prominence grows on campaigns, building gender diverse teams should be a priority. These teams will thus maintain a competitive, technical edge because diverse teams have shown to outperform monolithic ones.

The gender gap permeates the political consulting and STEM fields, and women are underrepresented. Women also are more likely to leave STEM jobs compared to men in similar fields and other women working in non-STEM professions. Therefore, women lack a strong voice at some of the most powerful seats in the professional worlds.

I found that homogeneous teams benefit men and contribute to stalling women's professional advancement. The key factors of these teams include men's biases against women's technical skills and women's internalized biases regarding their own skills, male-dominated informal networks, and unwelcoming, hostile work environments.

Lastly my research revealed that retaining and recruiting women in STEM jobs remains an obstacle that is self-perpetuating: women are often agents of diversity. Without women in STEM, companies will be challenged to recruit and retain women; teams will therefore remain monolithic.

### *RECOMMENDATIONS*

Given the findings above, I recommend that public affairs and political consulting agencies and campaigns consider some new approaches and tactics to grow gender diversity. First, agencies and campaigns should diversify executive leadership by promoting women to executive leadership positions. This would send a strong signal that gender diversity is valued at the company. Second, they should also staff more



project teams with women who are leads or co-leads on high-visibility projects. This approach would sharpen team outcomes and further attract women talent.

Third, firms and campaigns should establish recruiting objectives with the human resources department. This would ensure staff responsible for hiring is aware of the company's objective of growing gender diversity. Fourth, organizations should apply pressure to political and public affairs trade associations to develop resources directed at growing gender diversity.

Fifth, hiring a diversity and inclusion consultant would be a wise investment. This consultant would evaluate the company to formulate actionable recommendations to improve gender dynamics. Lastly, firms and campaigns should encourage their women staff to participate in women's professional networking groups.

#### *CHAPTERS TO FOLLOW*

My manuscript contains the following chapters.

*Chapter 2: The Rise of and Need for Big Data Analytics on Campaigns:* I affirm the rise of big data and its political consultants on campaigns. I illustrate how big data innovation gives winning campaigns a competitive edge.

*Chapter 3: Where we are Now – the Gender Gap:* I evaluate the gender gap across various industries, including corporate executive leaders, STEM fields, political elected office, and political consulting.

*Chapter 4: Homogeneous Data Teams and Obstacles to Gender Diversity:* I evaluate the key factors of monolithic teams. I also examine how monolithic teams benefit men and how the obstacle of recruiting and retaining women talent is a self-perpetuating problem.

*Chapter 5: Benefits That Gender Diversity Could Bring to Campaign Tech:* I examine the benefits of gender diversity on political tech and data campaign teams. I illustrate how women are often agents of diversity.

## **Chapter 2: The Rise of and Need for Big Data Analytics on Campaigns**

One need not look far to see the value and growing necessity of big data to win a campaign. Big data analytics teams give campaigns a competitive edge, particularly when top data scientists are on board. In this chapter, I examine the rise and growing prowess of big data on campaigns, particularly its role in targeting and mobilizing voters through get-out-the-vote efforts, polling, and digital marketing. I also study the rise of big data in relation to the political consulting industry. Lastly, I consider how big data analytics and their innovations created a competitive edge for the two winning presidential campaigns of Obama and Trump.

*Rise of Big Data*

Campaigns need voter data. In close electoral campaigns, data-driven campaigning can mean the difference between winning and losing.<sup>1</sup> Data give campaigns a list of persuadable citizens to target. Big data - large and detailed data sets of voter behavior, preferences and activities – allow campaigns to construct statistical models to predict voter turnout and messaging that will resonate with voters.<sup>2</sup> Through big data, campaigns can harness massive amounts of information to develop varied messages for different audiences – from a registered-independent single mom in Florida, to a coal miner in the Rust Belt.

In “Political Campaigns and Big Data,” David W. Nickerson, previously on the 2012 Obama analytics campaign team, and Todd Rogers, co-founder of Harvard’s Analyst Institute, examined the utility and evolution of big data. They define big data as a relatively new campaign capability that has revolutionized the extent to which voter data can be used to produce targeted messaging. “The techniques used as recently as a decade or two ago by political campaigns to predict the tendencies of citizens appear extremely rudimentary by current standards.” Before, just factors such as party affiliation, the performance of precincts, and the frequency of voting in the past were used to predict a citizens’ likely support.<sup>3</sup>

It took a long time for campaign professionals to realize the value of big data. First, necessary technological advancements needed to be achieved; this required huge

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<sup>1</sup> David W. Nickerson, and Todd Rogers, “Political campaigns and big data,” *The Journal of Economic Perspectives*, 28 (2) (2014): 53.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid, 51-52.

financial investments by political parties.<sup>4</sup> Big data require proper storage and computing power for maintenance and updates. Second, “statistical thinking ... had not [yet] taken root in the world of political consulting.”<sup>5</sup> Campaigns needed to build competitive data analytics teams outside of their traditional networks; this took time to mature.

Today, big data are more accessible and is thus more available for campaign strategy. The costs of purchasing and managing big data are less expensive, and these savings can be augmented with the data collection efforts of major political parties. As such, data analytics infrastructures are more solidified and sophisticated. These conditions have led to a demand, and hence larger supply, of data scientists and political operatives trained “to apply the statistical tools to campaign activities and data.”<sup>6</sup>

Contemporary campaigns leverage big data analytics in effective ways; big data analytics equip them with insights in developing political strategies of how best to interact with voters. Campaigns accumulate massive databases on individual citizens, including consumer purchasing data and previous political engagement, whether that be prior political campaign donations or volunteering.<sup>7</sup> Data analysts are then hired to construct predictive models using the data, resulting in predictive scores for each voter. This also includes a voter’s behavior, dispositions, and responses to campaign contact.<sup>8</sup> These scores can accurately predict a voter’s likelihood of responding to targeted messages or

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<sup>4</sup> Nickerson, 52.

<sup>5</sup> Ibid, 52.

<sup>6</sup> Nickerson, 53.

<sup>7</sup> Ibid, 57.

<sup>8</sup> Ibid, 53.

casting a ballot for the campaign's candidate. Big data analytics thus dramatically improve the efficiency and cost-effectiveness of how campaigns invest resources into voter interaction.<sup>9</sup> The use of these scores has increased significantly during the last few election cycles as more campaigns employ them.<sup>10</sup> The data "shape decisions about who the campaign should target, with a sense of how much such contact will affect voter preferences, behaviors like fundraising, or turnout at the polls."<sup>11</sup>

### *Political Consulting*

The rise of big data has introduced statistical thinking – a STEM capability – into the world of political consulting on a larger, more influential scale. A key trend, as it relates to big data on campaigns, is the rise of data analytics firms boasting talented data scientists and strategists. In fierce competition, data analytic firms engage in an arms race<sup>12</sup>: Which campaign has the winning strategy to target and persuade voters to show up for a candidate or stay at home? The conditions are ripe to provide analytically-minded consultants an opportunity to apply statistical tools to campaign activities and campaign data.<sup>13</sup> Before the rise of big data, consultants specialized in campaign data analytics, though it existed as a niche business, and "campaign decisions did not rely on these approaches."<sup>14</sup>

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<sup>9</sup> Nickerson, 70.

<sup>10</sup> Nickerson, "Political campaigns and big data," 70.

<sup>11</sup> Ibid, 53.

<sup>12</sup> Ibid, 51.

<sup>13</sup> Ibid, 53.

<sup>14</sup> Ibid, 52.

The rise of the political consulting industry drives the rise in the use of big data on campaigns – and consulting firms too are evolving.<sup>15</sup> “The job is now strategic communications. You have to have people with a broad variety of talent from data analytics to creative and [media] placement.”<sup>16</sup> And with a high demand for political consultants comes a bigger budget; spending on consultants by candidates from both parties and their affiliated super PACs surpassed previous campaigns totaling \$163 million in 2015, up from \$99 million in 2007.<sup>17</sup>

Ginny Badanes, a strategic advisor at Microsoft, told me that the real authority on data analytics for campaigns comes from outside political consultants:

It’s the function of how these tech companies are working with campaigns – who has the authority and who is actually leading the tech operation for a campaign. A [presidential] campaign like Clinton’s is so large, they have the infrastructure to build it up internally, but for smaller campaigns, they usually outsource.<sup>18</sup>

### *Rise of Big Data through Contemporary Presidential Campaigns*

The last three presidential election cycles provide evidence of the rise of big data and the integral role these political data analytics consultants play on campaigns. Big data innovations on campaigns – particularly between 2008 and 2016 – became more

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<sup>15</sup> Tarini Parti, “Big changes in a cutthroat industry,” *Politico*, September 11, 2014, <http://www.politico.com/story/2014/09/political-consulting-110834>.

<sup>16</sup> *Ibid.*

<sup>17</sup> Adam Sheingate, “The political consultant racket,” *The New York Times*, December 30, 2015, [https://www.nytimes.com/2015/12/30/opinion/campaign-stops/the-political-consultant-racket.html?\\_r=0](https://www.nytimes.com/2015/12/30/opinion/campaign-stops/the-political-consultant-racket.html?_r=0).

<sup>18</sup> Ginny Badanes, interview by Allison Kopp, December 7, 2016, transcript.

advanced and improved with each cycle, resulting in intense competition between the campaigns. The winning campaigns – Obama and Trump – were ultimately more innovative in their use of big data analytics.

Both of the winning Obama campaigns best leveraged big data to “recapture the style of politics” that is local, relatable and relevant to a specific audience and region.

“What that gave us was the ability to run a national presidential campaign the way you’d do a local ward campaign,” Simas says. “You know the people on your block. People have relationships with one another, and you leverage them so you know the way they talk about issues, what they’re discussing at the coffee shop.”<sup>19</sup>

Obama’s 2012 data team was highly disciplined with leveraging big data to target their persuadable voters, which paled in comparison to the Romney campaign. For one, the Obama team invested more resources in big data and had more sophisticated data analytics teams:

Romney’s data science team was less than one-tenth the size of Obama’s analytics department. Without a large in-house staff to handle the massive national data sets that made it possible to test and track citizens, Romney’s data scientists never tried to deepen their understanding of individual behavior.<sup>20</sup>

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<sup>19</sup> Sasha Issenberg, “A more perfect union, how Obama's team used big data to rally voters,” *MIT Technology Review*, December 19, 2012, <https://www.technologyreview.com/s/509026/how-obamas-team-used-big-data-to-rally-voters/>

<sup>20</sup> Issenberg, “A more perfect union, how Obama's team used big data to rally voters.”

Obama’s data team updated and reexamined their voter files weekly which “assigned every voter in the country a pair of scores based on the probability that the individual would perform two distinct actions that mattered to the campaign: casting a ballot and supporting Obama.”<sup>21</sup> These scores were calculated through ongoing survey work and constantly adjusted to respond to the volatile news cycle. Algorithms derived individual-level predictions, identifying patterns between opinions and the data points the campaign had assembled for every voter—“as many as one thousand variables each, drawn from voter registration records, consumer data warehouses, and past campaign contacts.”<sup>22</sup> This innovation enormously benefited the field where canvassers had scripted conversations handy for any voter interaction. Feedback was then channeled back to the servers to refine. “The efficiency and scale of that process put the Democrats well ahead when it came to profiling voters.”<sup>23</sup>

The Obama campaign’s use of big data catapulted them to victory twice. What brought them to success in 2012 was how they recalibrated from 2008. They knew they had to “succeed at registering and mobilizing new voters, especially in some of the fastest-growing demographic categories, to make up for any 2008 voters who did defect.”<sup>24</sup>

Obama 2012’s Campaign Director of Digital Analytics, Amelia Showalter, told me in an interview that “The 2012 Obama campaign used data and testing in pretty cutting-edge ways.”<sup>25</sup> It implemented new strategies, including: leveraging deep intelligence from its

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<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Amelia Showalter, email message to author, December 7, 2016.



constantly readjusting data analytics, including experiment-informed programs (EIPs), to measure how effective different types of messages were at moving public opinion; as well as one-on-one interactions with 500,000 potentially new Obama voters.<sup>26</sup>

The nature of big data as an arms race was evident in the Obama 2012 campaign whose media buying strategy stumped the Romney campaign. The advancements in the types of data the Obama campaign were able to acquire illustrate how the rise of big data drove campaign strategies.

One breakthrough innovation was an approach marrying the data found in cable and DVR set boxes with voter data. This idea came from Carol Davidsen, a female political tech consultant with experience writing code for cable boxes to create a record of a user's viewing history. Using this strategy, the campaign was able to penetrate the TV media communications channels commonly thought to lack targeting capabilities. "The revolution of media buying in this campaign was to turn what was a broadcast medium into a narrowcast medium."<sup>27</sup> What appeared to be an unconventional media buying strategy in insignificant markets was purposeful. While previous political consultants did not yet understand the value, it was an innovative use of big data in targeting new voters. As a result, the campaign was able to conceal much of its media buying strategy. Romney's data scientists simply could not decode those decisions without the voter models or persuasion experiments that helped Obama pick out individual targets.

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<sup>26</sup> Issenberg, "A more perfect union, how Obama's team used big data to rally voters."

<sup>27</sup> Issenberg, "A more perfect union, how Obama's team used big data to rally voters."

On the 2016 Trump campaign, the campaign strategy was informed by data analytics, resulting in an unprecedented victory. Throughout the campaign, many doubted Trump's ability to win based on conventional campaign elements. Catching up to the Clinton campaign did not seem possible. He trailed Hillary Clinton by more than half in field offices and by a 3-to-1 margin in ads. However, "these shortfalls made the role of analytics particularly important for Trump."<sup>28</sup>

The Trump campaign's digital operation was led by Brad Parscale, a marketing entrepreneur who collaborated with data scientists who previously worked on the "leave" side of Brexit. The team also combined its data intelligence with RNC resources to target and mobilize "disenfranchised new Republicans." These votes fit a new profile – they were younger, more populist, rural—"and also angry, active, and fiercely loyal to Trump."<sup>29</sup>

These voters were identified through personality and behavioral surveys. This included 13.5 million voters in 16 battleground states whom it considered persuadable and critical in tipping the scales in the campaign's favor. The campaign leveraged surveys and polling data, and daily election simulation models, to carry out an unconventional and highly targeted digital campaign. Their aim was to find the most strategic way to get

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<sup>28</sup> Michael Kranish, "Trump's plan for a comeback includes building a 'psychographic' profile of every voter," *The Washington Post*, October 27, 2016, [https://www.washingtonpost.com/politics/trumps-plan-for-a-comeback-includes-building-a-psychographic-profile-of-every-voter/2016/10/27/9064a706-9611-11e6-9b7c-57290af48a49\\_story.html](https://www.washingtonpost.com/politics/trumps-plan-for-a-comeback-includes-building-a-psychographic-profile-of-every-voter/2016/10/27/9064a706-9611-11e6-9b7c-57290af48a49_story.html)

<sup>29</sup> Joshua Green and Sasha Issenberg, "Inside the trump bunker, with days to go," *Bloomberg Businessweek*, October 27, 2016, <https://www.bloomberg.com/news/articles/2016-10-27/inside-the-trump-bunker-with-12-days-to-go>.

to 270 electoral votes, understanding that achieving the popular vote was not economical.<sup>30</sup>

This approach was “a leap beyond the widely used practice known as micro-targeting, in which campaigns use demographic and consumer data such as magazine subscriptions and club memberships to deduce political leanings.”<sup>31</sup> According to several media reports, these psychological strategies, when applied to data analytics, identified the voters who would be most open to being persuaded to support Trump.<sup>32</sup> Media also noted the integral role of Cambridge Analytica, the data analytics firm employed by the Trump campaign. This speaks to the growing prominence of big data consultants:

The reliance on Cambridge reflects a recognition by Trump’s campaign that drastic measures are required to erase a potentially irreversible disparity between Trump’s get-out-the-vote operation and Clinton’s meticulously built machinery.<sup>33</sup>

Trump’s data team spent over \$70 million a month to cultivate their following, and over \$100 million in the last few weeks before the election – building an audience of tenacious Trump supporters. And Facebook was the primary channel – its data engine. Simultaneously, these efforts resulted in even more big data – a valuable list of what

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<sup>30</sup> Rachel Martin, “How trump waged an under-the-radar ground game,” *NPR*, December 6, 2016, <http://www.npr.org/2016/12/06/504520364/how-trump-waged-an-under-the-radar-ground-game>.

<sup>31</sup> Kranish, “Trump’s plan for a comeback includes building a ‘psychographic’ profile of every voter.”

<sup>32</sup> Bradley Hope, “Inside Donald Trump’s data analytics team on election night,” *The Wall Street Journal*, November 9, 2016, <https://www.wsj.com/articles/inside-donald-trumps-data-analytics-team-on-election-night-1478725225>.

<sup>33</sup> Kranish, “Trump’s plan for a comeback includes building a ‘psychographic’ profile of every voter.”

was projected to be 12 million to 14 million e-mail addresses and contact information (including credit card numbers) for 2.5 million small-dollar donors, who together raised almost \$275 million.<sup>34</sup>

During the 2016 cycle, “[The RNC] made advances that put them ahead of the curve. Their use of machine learning and advanced analytics was far more sophisticated than many gave them credit.”<sup>35</sup> When considering who has the tech advantage, particularly after the Trump victory:

“Structurally, Republicans have made better use of their party apparatus. In 2012, Priebus invested \$125 million in the RNC’s data infrastructure. He revitalized it. And it’s the repository for all Republican voter data; it’s continually updated. And win or lose it’s still there and benefits everyone. Clinton and Obama had private voter files that only they benefited from. Anything Clinton built, only benefited Clinton. There is no central location for all the voter files. On the Republican side, the first priority was to provide customer support to campaigns around data. Structurally Republicans are beating Democrats when it comes to tech. I don’t doubt Democrats have more bells and whistles. But if you don’t get the fundamentals right, what’s the point?”<sup>36</sup>

The prominence and role of big data analytics on campaigns is real. Both presidential campaigns show that big data innovations pave the way for winning a campaign. Big

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<sup>34</sup> Martin, “How trump waged an under-the-radar ground game.”

<sup>35</sup> Ginny Badanes, interview by Allison Kopp, December 7, 2016, transcript.

<sup>36</sup> Ibid.

data prowess hinges on ensuring voter files are reexamined and frequently updated with the most precise data points, helping to increase the accuracy of targeting voters. The “analytics revolution” has not drastically “transformed campaigns in the manner that television did in the 1960s.” However, in a close political contest – much like what we saw in Obama 2012 and Trump 2016 – “data-driven campaigning can have enough effect to make the difference between winning and losing.”<sup>37</sup>

### **Chapter 3: Where we are now – the Gender Gap**

Unlike the recent phenomena of big data on campaigns, the gender gap is a widely documented. In this chapter, I affirm how the gender gap exists in the professional world and the status of women’s advancement. It examines the current status of the gender gap across STEM fields, elected office, political consulting and C-Suite levels in major corporations. The data show women lack a strong voice at some of the most powerful seats in the professional worlds.

#### *The Business and Political Fields*

When considering both the business and political fields, the gender gap is widespread. According to Catalyst, a leading nonprofit and research organization to accelerate progress for women in the workplace, as of January 2017, women held 29 (5.8 percent) of CEO positions in Standard & Poor 500 companies.<sup>38</sup> While women represented 44.3

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<sup>37</sup> Nickerson, 53.

<sup>38</sup> Catalyst, “Women CEOs of the S&P 500,” *Catalyst*, March 14, 2017  
<http://www.catalyst.org/knowledge/women-ceos-sp-500>

percent of employees at these companies, only 9.5 percent were top earners, 19.9 percent held board seats and 25.1 percent were executive or senior level officials and managers.<sup>39</sup>

When considering global numbers, the percentage of women in senior roles is slowly growing worldwide, but at this pace, we will not reach parity for decades. In 2016, women held under a quarter (24 percent) of senior roles across the world—an increase of only 3 percent from 2011.<sup>40</sup> Data from the International Labor Organization cite that women's participation in the global labor force has declined, dropping from 52.4 percent in 1995 to 49.6 percent in 2015.<sup>41</sup>

One influential thought leader, tech executive and women's advocate - Sheryl Sandberg - has shed considerable light on the gender gap. She continues to urge business communities to acknowledge the toll it takes on production and women's advancement as a whole. In her memoir *Lean In* – a manifesto for women to embrace their full potential – she contends “the blunt truth is that men still run the world.”<sup>42</sup> While women continue to outpace men in educational credentials, women have ceased to make real progress in executive positions. “When it comes to decisions that most affect our world, women's voices are not heard equally.”<sup>43</sup>

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<sup>39</sup> Ibid.

<sup>40</sup> Catalyst, “Women in management,” Catalyst, February 7, 2017, <http://www.catalyst.org/knowledge/women-management>

<sup>41</sup> Lise Kingo, “Closing the gender gap can eliminate a big roadblock to growth,” *CNBC*, March 7, 2017, <http://www.cnbc.com/2017/03/07/international-womens-day-is-the-time-to-end-gender-bias-commentary.html>

<sup>42</sup> Sheryl Sandberg, *Lean In: Women, Work, and the Will to Lead* (New York: Alfred A. Knopf, 2013), 5.

<sup>43</sup> Ibid, 6.

For women who hold elected office, the gender gap also exists. In 2016, according to the Center for American Women and Politics, women hold only 9.6 percent or 105 of the 535 seats in the 114th U.S. Congress. This number includes 20 percent of the 100 seats in the Senate and 19.5 percent, or 85 of the 435 seats in the House of Representatives. Similar findings exist in statewide elected offices as well. Only 24 percent of women hold executive positions, and 24.5 percent occupy state legislator positions.<sup>44</sup>

### *Political Consulting*

A stark gender gap also emerges in the political consulting industry. It was documented in a study that analyzed data from congressional campaigns in the late 1990s and the role of women consultants. Researchers explored “how widely women and their consulting firms participate as professional advisors to candidates in federal elections,”<sup>45</sup> which is an “increasingly important yet understudied facet of women’s political participation.”<sup>46</sup>

Women were found to be underrepresented in the political consulting industry despite a considerable growth in the field overall.<sup>47</sup> Women made up “only 19 percent of the total number of consultants identified as principals of firms working in the 1998 U.S. House races.”<sup>48</sup> Partisanship was found to be a factor in women’s involvement in

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<sup>44</sup> Center for American Women and Politics, “Women in elective office 2016,” Eagleton Institute of Politics Rutgers, 2017, <http://www.cawp.rutgers.edu/women-elective-office-2016>.

<sup>45</sup> Costas Panagopoulos, David A. Dulio, and Sarah E. Brewer, “Lady luck? Women political consultants in U.S. congressional campaigns,” *Journal of Political Marketing* 10 (3) (August 17, 2011): 251.

<sup>46</sup> *Ibid*, 253.

<sup>47</sup> Panagopoulos, “Lady luck? Women political consultants in U.S. congressional campaigns,” 254.

<sup>48</sup> *Ibid*, 260.

political consulting as well. Democrats were more likely to hire firms with women principals than Republicans, and female candidates were more likely than male candidates to hire these firms.<sup>49</sup> “The business of women consultants can be linked to the presence of women candidates in federal elections. Consequently, the relatively low proportion of women candidates in federal elections can be a strong explanation as to why there are so few women political consultants.”<sup>50</sup>

The political consulting industry continues to grow. The American Association of Political Consultants (AAPC) membership numbers offer a glimpse of the current status of women’s participation within the field. And, leadership of women has progressed. According to direct mail specialist and AAPC board member, Liz Chadderdon, women represent 36 percent on the AAPC board, the highest number of women in AAPC history. Women also represent 30 percent of the membership overall which is a significant improvement; as in 2005, only 4 percent of AAPC members were women. She also offers insight into the efforts underway to maintain better parity within the association’s leadership and increase women’s visibility:

Our upcoming Pollie Conference is co-chaired by Becky Donatelli and one of our four 2017 Hall of Fame honorees is a woman. The next Democratic President of AAPC is Rose Kapolcynski (2019 - 2020) who is currently the AAPC Secretary/Treasurer. Furthermore, 2017 is the third year of our 40 Under 40 awards and over those three years, an average of 44 percent of the winners

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<sup>49</sup> Ibid, 262.

<sup>50</sup> Ibid, 268.



were women, including a whopping 55 percent of the winners in 2016. Our bipartisan judging panel for 40 Under 40 in 2017 was 56 percent female. Our agenda for the 2017 conference is not yet finished but our goal is for 40+% of the speakers to be women. The current Pollie Conference committee, made up of Board and non-Board members, is 50 percent female.<sup>51</sup>

*Representation of women across various industries*

	STEM Workers	Bachelor degrees in engineering and computer science	Computer science workers	Political consultants, principals of firms on 1998 U.S. House races	AAPC Membership	Seats in the 114th U.S. Congress - House	Seats in the 114th U.S. Congress - Senate	CEO positions in S&P 500 companies	Exec. & senior level officials in S&P 500 companies
Percent	24	20	26	19	30	19.5	20	5.8	25.1

*STEM Fields*

According to the Census Bureau's American Community Survey, 24 percent of STEM workers are women.<sup>52</sup> Despite the rapid expansion of the STEM workforce, women only account for 27 percent of employees in computer science and math positions.<sup>53</sup>

A recent report by the American Association of University Women (AAUW) examined the current state of women entering into STEM fields using U.S. Census, National Science Foundation, and National Center for Science and Engineering data. It found girls are studying and excelling in science and mathematics more than ever before, but “the

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<sup>51</sup> Personal Communication, Liz Chadderdon.

<sup>52</sup> David Beede, Tiffany Julian, David Langdon, George McKittrick, Beethika Khan, and Mark Doms. U.S. Department of Commerce Economics and Statistics Administrations. [www.esa.doc.gov](http://www.esa.doc.gov). "Women in STEM: A Gender Gap to Innovation", 2009.

<sup>53</sup> Ebonye G. Wilkins, “Women & STEM: It's not just a numbers problem,” Haas Institute, May 11, 2016, <http://haasinstitute.berkeley.edu/women-stem-its-not-just-numbers-problem>.

dramatic increase in girls' educational achievements in scientific and mathematical subjects has not been matched by similar increases in the representation of women working as engineers and computing professionals."<sup>54</sup> U.S. women earn roughly a fifth of all computing and engineering bachelor degrees.<sup>55</sup> Today, 12 percent of engineers are women, and the number of women in computing has fallen from 35 percent in 1990 to just 26 percent today.<sup>56</sup>

Highly educated women are opting out of tech-intensive industries.<sup>57</sup> Catalyst surveyed 5,916 MBA graduates from 2007 – 2014 who were working in business roles across industries in the United States, Canada, Europe, and Asia. Results showed only 18 percent of newly minted women MBAs worldwide take managerial jobs at tech companies, compared with 24 percent of men; and, about half of the women leave the industry, compared with 31 percent of the men.<sup>58</sup>

Female retention is an issue in STEM, where women leave tech jobs at more than twice the rate men do.<sup>59</sup> In one study, researchers followed female college graduates and compared the trajectories of women in STEM-related occupations to other professional occupations. Women in STEM occupations were "significantly more likely to leave their occupational field than professional women, especially early in their career" and were

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<sup>54</sup> Christianne Corbett. *Solving the equation: The variables for Women's success in engineering and computing*. (American Association of University Women, 2015), 1.

<sup>55</sup> Corbett, 5.

<sup>56</sup> Corbett, 1.

<sup>57</sup> Ibid, 4.

<sup>58</sup> Anna Beninger, *High potentials in tech-intensive industries: The gender divide in business roles* (Catalyst, 2014), 3.

<sup>59</sup> Mundy, "Why is Silicon Valley so awful to women?"

less likely to return.<sup>60</sup> The research, however, could not point to one factor that led to women exiting the field. However, their findings did show that that investments and job rewards that generally retain workers, such as advanced training, failed to build commitment among women in STEM:

Women in STEM fields do not react as positively to increasing job satisfaction, job tenure, and advancing age, suggesting that climate issues or lack of “fit” between worker and job persist for longer periods of time in STEM careers. This helps explain the widening retention deficit that STEM women experience over time relative to professional women.<sup>61</sup>

Women are also less likely to hold high-level positions in STEM fields. In “Climbing the Technical Ladder, Obstacles and Solutions for Mid-Level women in Technology,” researchers conducted a large-scale survey and in-depth interviews with female scientists and engineers at seven mid-to-large, publicly traded Silicon Valley high-tech firms. The report found “gender disparity in technical jobs remains glaringly obvious as very few women reach top technical positions, such as technology fellow or vice-president.”<sup>62</sup> Technical men are more likely to hold high-level positions, where the “odds of being in a high-level position are 2.7 times as great for men as for women.”<sup>63</sup>

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<sup>60</sup> Jennifer Glass, Sharon Sassler, Yael Levitte, and Katherine M. Michelmore, “What’s So Special about STEM? A Comparison of Women’s Retention in STEM and Professional Occupations, *Social Forces* 92 (2) (2013): 723.

<sup>61</sup> *Ibid*, 744.

<sup>62</sup> Caroline Simard, *Climbing the technical ladder: Obstacles and solutions for mid-level women in technology*. (Palo Alto, CA: Michelle R. Clayman Institute for Gender Research, Stanford University, Anita Borg Institute for Women and Technology, 2008), 4.

<sup>63</sup> *Ibid*, 4.

Women also “comprise an increasingly smaller proportion of the workforce at each successive level (from entry to mid to high).”<sup>64</sup>

In a recent feature in the *Atlantic* about the gender gap in tech, reporter Liz Mundy illustrates that while major tech companies have certainly taken notice of the gender gap and are working to be more inclusive, the improvements have been slow:<sup>65</sup>

In 2016, Google reported incremental improvements: 31 percent of its overall workforce is now female, up one percentage point over the previous year.

Nineteen percent of technical roles are held by women, also up a percentage point. At Facebook, women’s overall representation went up from 32 percent to 33 percent. In technical roles, women’s representation also increased a single percentage point, from 16 percent to 17 percent.

The gender gap permeates fields such as STEM, elected office, political consulting and C-Suite levels in major corporations. Therefore, women are underrepresented and lack a strong voice at some of the most powerful seats in the professional world.

#### **Chapter 4: Homogeneous Data Teams and Obstacles to Gender Diversity**

Homogeneous teams benefit men and contribute to stalling women’s advancement.

This chapter examines key factors of male-dominated, monolithic teams, as it relates to

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<sup>64</sup> Ibid, 4.

<sup>65</sup> Liza Mundy, “Why is Silicon Valley so awful to women?,” *The Atlantic*, April 2017, <https://www.theatlantic.com/magazine/archive/2017/04/why-is-silicon-valley-so-awful-to-women/517788/>.

STEM and political data fields. My research confirms these factors are major barriers that must be overcome to attract and retain more women. If women are not, retention and recruitment will remain an obstacle. As a result, attempts to advance women in these fields demonstrate a self-perpetuating problem: a lack of diversity on teams contributes to women failing to enter and to remain the field; women are needed to help retain and recruit women into STEM jobs, as they are often agents of diversity.

### *Factors Working Against Diverse Teams*

Current research and interviews with my respondents confirm the following key factors that interplay to prevent gender diversity on teams: people's biases towards women's technical skills and women's internalized biases regarding their own skills; a male-dominated work culture that creates an unwelcoming environment for women; and a lack of informal female networks and role models.

### *Gender biases of women's technical skills*

Research shows both men and women can perceive women's technical skills differently to men's. This phenomenon has a negative effect on women remaining and advancing in STEM fields. In "Climbing the technical ladder: Obstacles and solutions for mid-level women in technology" conducted by Stanford University and the Anita Borg Institute for Women and Technology, the researchers conducted a large-scale survey and in-depth interviews with female and male scientists and engineers at seven mid-to-large, publicly traded Silicon Valley high-tech firms. They sought to learn why women were not advancing at the same rates as men beyond mid-level management in STEM jobs.

The researchers found women in management positions are perceived by both women and men as less technically competent than their male counterparts. This can create an environment where women are viewed (and can view themselves) as “not fitting in” with the company culture.<sup>66</sup> In interviews, men and women who had female managers were “less likely to describe their managers as having strong technical skills than those with male managers. Women leaders (regardless of their accomplishments) were more likely to be judged less favorably and perceived as less competent than are their male counterparts.”<sup>67</sup>

As a result, women leaders may have to work harder than their male peers to prove technical competence. The bar is higher for women, and the pressure is on because women are not expected to excel in technical areas.<sup>68</sup>

Women can internalize these double standards, which can make them wrongly believe they are not technically competent. Ginny Badanes, strategic advisor for tech at Microsoft, described a female colleagues who did not consider herself a “woman in tech” because “she only knew *one* kind of coding.”<sup>69</sup> Badanes believes women possibly scrutinize their tech expertise more compared to their male colleagues. As a result, women set higher standards against which they measure themselves and doubt their

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<sup>66</sup> Caroline Simard, *Climbing the technical ladder: Obstacles and solutions for mid-level women in technology*. (Palo Alton, CA: Michelle R. Clayman Institute for Gender Research, Stanford University, Anita Borg Institute for Women and Technology, 2008), 4.

<sup>67</sup> Simard, 51.

<sup>68</sup> Ibid.

<sup>69</sup> Ginny Badanes, interview by Allison Kopp, December 7, 2016, transcript.

abilities. Badanes even admitted that it took her time to qualify herself as a woman in tech: “I now finally believe it belongs to me.”<sup>70</sup>

Amelia Showalter, a previous director of digital analytics on the 2012 Obama campaign and data analytics consultant, also believes women are more likely to scrutinize their tech skills. She explained that women tend to experience an imposter syndrome - a concept describing high-achieving individuals who have an inability to acknowledge their accomplishments and a fear of being exposed as a fraud – when it comes to feeling as though they truly belong in tech:

I feel that way. I have skills in certain areas, and I’m very aware of the areas in which I don’t have skills. Part of why I’m excited to start this firm with my deputy Evan is that we have complimentary skills, I’m good at analyzing data, building models, the statistical side of things. And he comes from a computer programming background. So I always feel like he has the hard skills. But then some would look at me and say, oh you have the hard skills. And it is true. I think there is a little bit of an imposter syndrome that women have. I know how to do all these things, but because I can’t program in Python then I’m not a hardcore tech person.<sup>71</sup>

Ximena Hartsock, co-founder of tech and political consulting company Phone2Action, also agrees. She explained that women are measured by different standards than men, which is a key factor that prevents women’s advancement: “I think women in any career

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<sup>70</sup> Ginny Badanes, interview by Allison Kopp, December 7, 2016, transcript.

<sup>71</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

have to prove themselves more than men do, especially in politics, and it's hard in tech, that's for sure. Women have to be over-prepared, and they are constantly measured by standards that are not extended to the male side."<sup>72</sup> She also admitted it was difficult for her at first to consider herself a woman in tech: "I was a little hesitant at first. I can see how it can be an issue for a lot of women, how they would be hesitant."<sup>73</sup>

Studies show how these biases discriminate against women's work. A recent study from the California Polytechnic University and North Carolina State University identified gender bias among those who write and approve software. The researchers evaluated a website called GitHub, one of the largest collections of software code encompassing open-source software projects; anyone can contribute by proposing a change to a piece of software. This includes fixing a bug or adding a feature.<sup>74</sup> After the researchers analyzed the contributions of approximately 1.5 million Github users, they found that the contributions from women were treated differently than contributions from men:

Our results show that women's contributions tend to be accepted more often than men's. However, women's acceptance rates are higher only when they are not identifiable as women. Our results suggest that although women on GitHub may be more competent overall, bias against them exists nonetheless.<sup>75</sup>

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<sup>72</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>73</sup> Ibid.

<sup>74</sup> Dan Misener, "Study raises questions about gender bias in the world of coding," *CBS News*, February 16, 2016, accessed April 15, 2017, <http://www.cbc.ca/news/technology/study-raises-questions-about-gender-bias-in-the-world-of-coding-1.3450186>.

<sup>75</sup> Josh Terrell, Andrew Kofink, Justin Middleton, Clarissa Raine, Emerson Murphy-Hill, Chris Parnin, and Jon Stallings, *Gender differences and bias in open source: Pull request acceptance of women versus men*. No. e1733v2. PeerJ Preprints, 2016, <https://peerj.com/preprints/1733.pdf>.



These gender biases are two-fold: women internalize the biases that assume they are not as technically competent, and their colleagues reinforce these beliefs, marginalizing women's competencies. Because their talents are more scrutinized, it creates an unwelcoming and discouraging environment for women.

*Male-dominated work culture that is unwelcoming to women*

The male dominated work culture common in STEM fields creates an unwelcoming environment for women. This factor leads to homogeneous teams. As Badanes explained, "There's the reputation that tech is male-driven and dominated that turns off a lot of women. Work is being done to correct this, but it's a hindrance."<sup>76</sup> There are several elements that cultivate this culture, including the programmer stereotype, gender dynamics that exclude and marginalize women's contributions, and a fiercely competitive work culture unsupportive of balancing work and family life.

Melinda Gates, an advocate for women in tech, contends that the "programmer" stereotype has a way of pushing women out of STEM fields,<sup>77</sup> and it has certainly played an important role in the development of the male-dominated tech industry. While women were some of the first computer programmers, their numbers have dropped. Researchers suspect that that the sudden decrease of women pursuing tech professions coincided with the growth in home computers and the emerging "male tech geek"

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<sup>76</sup> Ginny Badanes, email message to author, February 13, 2017.

<sup>77</sup> Jessi Hempel, "Melinda Gates Has a New Mission: Women in Tech."

stereotype of “a guy in a hoodie in a garage” – the brogrammer.<sup>78</sup> As Janet Kraus, CEO of Peach an e-commerce fashion company said, “When a girl sees a guy in a hoodie in a garage,” says Kraus, “that doesn’t look like her path.”<sup>79</sup>

The male-dominated culture also creates gender dynamics on teams that can exclude and marginalize women’s contributions. Celinda Lake, CEO of a progressive polling agency that leverages data analytics, explained some common occurrences when collaborating with male-dominated teams on campaigns. This includes men bonding together; being more deferential to other men’s opinions and resisting women’s opinions; silencing, ignoring or interrupting women; and informal dynamics such as joking that work to marginalize women.<sup>80</sup> In fact, studies show that women who work in tech are interrupted in meetings more often than men. In 2014, researchers recruited 20 male and 20 female volunteers to engage in two short conversations, one with a man and one with a woman.<sup>81</sup> Women were found to be interrupted more often than men:

If a man’s conversational partner was female, he logged an average of 2.1 interruptions over the course of a three-minute dialogue; if his counterpart was male, however, that number dropped to 1.8. Women, too, were less likely to interrupt men than to cut off other women. In each conversation, women

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<sup>78</sup> April White, “Women in tech: Breaking the digital ceiling,” *Harvard Business Review*, March 10, 2015, accessed November 30, 2016, [https://www.alumni.hbs.edu/stories/Pages/story-bulletin.aspx?num=4494&utm\\_campaign=Socialflow&utm\\_source=Socialflow&utm\\_medium=Tweet](https://www.alumni.hbs.edu/stories/Pages/story-bulletin.aspx?num=4494&utm_campaign=Socialflow&utm_source=Socialflow&utm_medium=Tweet).

<sup>79</sup> Ibid.

<sup>80</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017.

<sup>81</sup> Adrienne B. Hancock and Benjamin A. Rubin, “Influence of communication partner’s gender on language,” *Journal of Language and Social Psychology* 34, no. 1 (2015): 46-64, [http://journals.sagepub.com/doi/abs/10.1177/0261927X14533197?papetoc=.](http://journals.sagepub.com/doi/abs/10.1177/0261927X14533197?papetoc=)

interrupted an average of 2.9 times if their partner was female, and just once if their partner was male.<sup>82</sup>

A tech startup CEO and doctorate in linguistics, Kieran Snyder, examined gendered speech patterns in the tech industry too. Over the course of one month, she observed a total of 900 minutes of conversation of meetings in her office. She recorded over 300 interruptions and discovered men interrupted twice as often as women, and were three times as likely to interrupt women as they were to interrupt other men.<sup>83</sup>

Male-dominated workplaces can also be unsupportive of balancing work and family responsibilities. Over a third of mid-level technical women have delayed having children to achieve career goals.<sup>84</sup> “Mid-level women view high-tech culture as competitive and unfriendly— one that requires significant personal sacrifice as well as concerted effort to be assertive in order to be heard.”<sup>85</sup>

Lake explained that while there are more women in polling and political consulting, as a whole the data and political field can be hard for women, particularly as they try to juggle work and family responsibilities. She even revealed that many women-owned firms are run by single women without children:

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<sup>82</sup> Alice Robb, “Why men are prone to interrupting women,” *The New York Times*, March 19, 2015, accessed April 15 2017, <http://nytlive.nytimes.com/womenintheworld/2015/03/19/google-chief-blasted-for-repeatedly-interrupting-female-government-official/>.

<sup>83</sup> Kieran Snyder, “How to Get Ahead as a Woman in Tech: Interrupt Men,” *Slate.com*, July 24, 2014, accessed April 15, 2017, [http://www.slate.com/blogs/lexicon\\_valley/2014/07/23/study\\_men\\_interrupt\\_women\\_more\\_in\\_tech\\_workplaces\\_but\\_high\\_ranking\\_women.html](http://www.slate.com/blogs/lexicon_valley/2014/07/23/study_men_interrupt_women_more_in_tech_workplaces_but_high_ranking_women.html).

<sup>84</sup> Caroline Simard, *Climbing the technical ladder: Obstacles and solutions for mid-level women in technology*, 4.

<sup>85</sup> *Ibid*, 6.

Most of the women-owned firms are run by women without children. I think that combining work and family remains very hard, in politics period. It's still one of the problems with recruiting woman candidates. You can find more balance by getting out of politics and going into advocacy issues and commercial polling... and big data [fields] are even worse. Men are working around the clock, irregular hours, no weekends, and paying a penalty for any paternity leave.<sup>86</sup>

According to Hartsock, without women in leadership positions at tech companies who are mothers, "many leave the career because of the culture we set." Women believe if they want to have children, "they have to go back home... they don't think there is a strong possibility to have children and stay at work."<sup>87</sup> To combat this, "we have to make the pipeline to leadership positions easier for women" so they think it is possible to balance work and family.<sup>88</sup> She went a step further by explaining how an inflexible work environment hinders women's advancement:

I have seen it be difficult for young mothers to stay in the job with the same amount of hours. They have to change their schedules for breastfeeding or leave the office earlier. Your career can completely stop or goes on hold. It's unfair, and it has to do a lot with the work environment that can be very rigid. So if you have more flexibility, then women in these fields will excel... it will be an easier environment.<sup>89</sup>

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<sup>86</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017.

<sup>87</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>88</sup> Ibid.

<sup>89</sup> Ibid.

### *Informal networks and access to women role models*

Informal networks – relationships that provide professional access to influential colleagues – are another factor of homogeneous teams, particularly in data and tech fields. Synonymous with the “boys club,” all the women interviewees highlighted or experienced this phenomena in the workplace. Journalist Liza Mundy notes women often feel “stalled” and blocked from accessing positions and roles at tech companies.<sup>90</sup> These networks have shown to deter inclusive work environments. They benefit men’s advancement in the workplace, at the expense of women. With more men than women in positions of power, they tend to direct more developmental and mentoring support to junior men.<sup>91</sup> Badanes discussed an experience where she challenged an informal network that excluded women:

I’ve definitely had experiences where I’ve been frustrated and felt that because of gender decisions were made differently or actions were happening in a way that wouldn’t happen if I were male. I had an experience at my old job where all the men on the leadership team went on a fishing trip and called it a leadership retreat. And I was on the leadership team, and I wasn’t invited. It was very frustrating. And when I expressed my displeasure, they didn’t do it again, but I could tell that I sort of broke up the boys club, and they weren’t happy with it.<sup>92</sup>

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<sup>90</sup> Mundy, “Why is Silicon Valley so terrible to women?”

<sup>91</sup> Herminia Ibarra, Robin Ely, and Deborah Kolb, “Women rising: The unseen barriers,” *Harvard Business Review*, September 2013, <https://hbr.org/2013/09/women-rising-the-unseen-barriers>.

<sup>92</sup> Ginny Badanes, interview by Allison Kopp, December 7, 2016, transcript.

A Facebook employee and manager at Tumblr said, “You would think all things are equal, but these backdoor conversations are happening in settings that women are not invited to. The whole boys’-club thing still applies. If you party with the right people at Burning Man, you’re going to be part of this boys’ club.”<sup>93</sup>

Women lose out on professional opportunities because of informal networks that benefit men:

Many of the men are tech managers, and they make hiring and promotion decisions in the locker room, at the pool table or golf club. And women are not there, and they don’t have the opportunity to make those relationships. The political capital women may need to get that promotion is not there even though they may be qualified.<sup>94</sup>

This notion of “political capital” reverberates among my other female interviewees. Lake has experienced what she calls the “good ole boys network,” and believes it is pervasive in politics and big data fields. She also underscores that politics relies on “personal power.”<sup>95</sup> This can be a challenging dynamic for women, particularly with the gender gap at play.

Women can also experience isolation without female role models in the workplace.

Showalter illustrated how male-dominated workplaces can force out women. On the Obama 2012 campaign, the professional environment of the campaign grew more and

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<sup>93</sup> Mundy, “Why is Silicon Valley so Awful to Women?”

<sup>94</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>95</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

more contentious and competitive. Many of Showalter's role models were women who left primarily because of "turf battles" or "not being taken seriously."<sup>96</sup> She explained the void it left, which can cause a cascading effect on female retention. Women begin to feel isolated and opt to change jobs or careers:

Absolutely I witnessed a bunch of women leave the campaign, either totally leaving or taking another position in the field. The gender dynamics played a huge part. There were five women who were confidants, and we could all get a drink together and commiserate. But at some point, they all left the campaign, and I felt very isolated by the end. It did feel like that there was an enormous pool of talented women that were shut out or left because the campaign was too frustrating... And to leave a presidential campaign before the end – that's big. So by the end of the campaign, if I had not had such a good team around me – a digital analytics team that I built, of people I thought were cool, it would have been really hard. But when I think about women who leave STEM, or women who leave tech companies, there has been a cascading effect there. I would never begrudge the women who leave, but when they do, that means that other women are more likely to leave because there is no one else around to commiserate with, or band together or to normalize a female presence in the office.<sup>97</sup>

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<sup>96</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

<sup>97</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

Data support Showalter’s reference to the cascading effect as well. Girls Who Code conducted a 2016 large-scale survey of girls aged 12-18 years old, undergraduate college students, and other key stakeholders to understand the state of girls’ interest in computing at each stage of their education. Their findings revealed female undergraduates and young workers believe having someone who encourages them plays a significant role in the decision to major in computing or other STEM fields. Also “the influence of role models is strong among women who don’t study computing at college but then go on to pursue a computing career.”<sup>98</sup> Women role models have the potential to inspire, attract and help retain women as well, with “the essential impetus and direction to do so.”<sup>99</sup>

And without women role models and gender diversity on teams, women feel isolated, much like Showalter confessed in her experiences. This isolation has been witnessed by Hartsock as she runs a political tech firm:

You see a lot of male coders and engineers, and some of the women in these roles tend to be shy, or they are introverts. So the interaction between women and men tech engineers can be difficult. It can be a very lonely place for women. Women engineers tend to be in isolation.<sup>100</sup>

*The obstacle of female retention and recruitment to STEM jobs – a self-perpetuating problem*

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<sup>98</sup> Accenture and Girls Who Code. *Cracking the gender code* (Accenture, 2016), 15.

<sup>99</sup> Ibid.

<sup>100</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.



As a result of the factors examined above, recruiting and retaining women in STEM fields is an obstacle hindering gender diversity. It is also a self-perpetuating problem. Few women enter and remain in STEM fields, so the talent pipeline is smaller than it ought to be. As a result, less women are available as role models to help attract women to STEM jobs. More women in leadership positions can help to mitigate the factors that contribute to an unwelcoming environment for women. Failing to retain women in these fields is a barrier to growing diversity on teams because women are often agents of diversity.

For instance, a male-dominated work place can look unattractive to a woman, despite a company's best efforts to recruit more women. According to a small, tech start-up in Silicon Valley, companies are not adverse to hiring diverse teams. Instead, it is a function of the start-up environment. The consensus in the industry is to build out your diverse team after you have a solid product. The founder said, "It's the idea that we want to move fast, and the fastest way to hire is to hire from our network. And when you have 11 men on your team out of 12, it becomes a hostile, intimidating work environment for that one woman on your team."<sup>101</sup>

The hardest part of hiring a diverse team is making sure the new hire feels like a real and necessary part of the team, with challenging work but also the right amount of support.<sup>102</sup> This illustrates why less diverse teams would be hesitant to recruit women

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<sup>101</sup> Aki Ito and Ellen Huet, "Here's what happened when a startup tried affirmative action hiring," *Bloomberg*, January 10, 2017, <https://www.bloomberg.com/news/articles/2017-01-10/what-happened-when-a-startup-tried-affirmative-action-hiring>.

<sup>102</sup> Ito, "Here's what happened when a startup tried affirmative action hiring."

talent. Companies are reluctant to hire women because they are concerned the work environment would be isolating and unwelcoming to women.

This reality was echoed by Showalter who at the time of our interview was building her boutique data analytics firm to launch in early 2017. She came to the realization that professional opportunities are largely shaped by your network and previous work experiences. So, as a woman in a male-dominated field, when she looked for a future partner, it was her male deputy from the Obama 2012 campaign. While she understands diversity would be a great attribute to her team one day, she has experienced firsthand how building a team is built on a foundation of who you know.

It all builds on itself. People get their first job because they fit a profile, and then they get more experience. Even if you are putting in a lot of work to hire, the people who have come through the pipeline for years had advantages because of their race and gender, so you're kind of in a bind... I used to get angry, that men would start companies together. Then, of course, all the people in charge are white guys. And now that I've started a company, with a white man because he was my deputy on the Obama 2012 campaign ... I don't think I would have started a company with anyone else. I know him well, we're friends. But now our company is all white...

How did this happen? How did he and I get into this job? What people of color could have had my job or his? I think you end up banding together with the people you were thrown in with, and if the system is constantly throwing you in

with people who look like you, it's hard to break out of that... I think I have a little more empathy now for the men. It is understandable that they would start firms with people they feel really comfortable with.<sup>103</sup>

Access to women tech talent can hinder diversity on teams as well. Companies and campaigns must be deliberate with their efforts to identify women talent. However, Lake strongly counters the “we can't find women” argument:

Really good guys in our field want more diversity and ask me, “Where do you get the women?” We have women pounding on our door every day. But we're a women-owned firm, we're very visible about it, and women are attracted to that. And I'll say to the guys... go to women's colleges to recruit and offer internships.<sup>104</sup>

Much like what Showalter explained, broadening your reach could prove unsuccessful, as informal networks and the advantages men have based on the work environment keep the pipeline small for women. However, while recruiting is a challenge, it could prove to be a key solution to helping make the pipeline bigger.

Gender diversity on teams can be achieved if more women remain in STEM fields; in turn, they can provide support in the form of informal networks and role modeling for other women. This would have a direct impact on broadening the talent pipeline and network of women in STEM. In this sense, women are often agents of gender diversity.

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<sup>103</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

<sup>104</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017.

## **Chapter 5: Benefits That Gender Diversity Could Bring to Campaign Tech**

In this chapter, I evaluate how gender diversity improves team outcomes. Studies and data show the benefits of diverse teams; they outperform homogeneous ones because they are smarter and yield higher financial outcomes for companies. I assert that these successes can be applied to the professional data analytics field on campaigns. My research shows women bring a unique perspective to team dynamics. They are more likely to question the status quo and innovate to solve problems because of their outsider status and cultural roles. These perspectives enable them to be more attuned to the differences women face and help teams avoid blind spots in data interpretation. Studies and my interviewees' experiences confirm women are more collaborative on teams. Their point of view fosters a team dynamic that is more likely to innovate and produce data that are accurate and effective. My research findings also show that women are often agents of diversity. They understand, appreciate, and promote the benefits of diverse teams. Therefore, women are more likely to assemble a diverse team - beyond just gender - which will improve data collection and interpretation to make a campaign more effective.

### *Diverse teams outperform homogeneous ones*

Organizations are increasingly making the business case for diversity. However, when observing the gender gap on corporate boards, the sincerity of a businesses' intentions merit scrutiny. This leads us to the next question – does gender diversity really matter, and do companies really see value? Top industry analysts say yes - diverse teams are

smarter and more innovative. New research makes it increasingly clear that companies with more diverse teams perform better and yield higher financial outcomes.<sup>105</sup>

A report by McKinsey & Company on 366 public companies, across a range of industries in Canada, Latin America, the United Kingdom, and the United States, found that those in the top quartile for gender diversity were 15 percent more likely to have returns above the industry mean. And companies in the top quartile for ethnic and racial diversity in management were 35 percent more likely to have financial returns above their industry mean. To come to this conclusion, McKinsey examined metrics such as financial results and the composition of top management and boards.<sup>106</sup> While certain fields perform better on gender diversity and other industries on ethnic and racial diversity, no industry or company is in the top quartile on both dimensions.<sup>107</sup>

Other studies have found similar results. In a global analysis conducted by Credit Suisse Research Institute of 2,400 companies, organizations with at least one woman on the board outperformed their peer group with no women on the board by 26 percent over the last six years.<sup>108</sup> Interestingly, the studies found that the positive gender impact on

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<sup>105</sup> David Rock and Heidi Grant, "Why diverse teams are smarter," Harvard Business Review, November 4, 2016, <http://hbr.org/2016/11/why-diverse-teams-are-smarter>.

<sup>106</sup> Vivian Hunt, Dennis Layton and Sara Prince, "Why diversity matters," McKinsey & Company, January 2015, <http://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters>.

<sup>107</sup> Ibid.

<sup>108</sup> Media Relations Credit Suisse AG, "Large-cap companies with at least one woman on the board have outperformed their peer group with no women on the-board by 26% over the last six years, according to a report by credit suisse research institute," Credit Suisse, July 31, 2012, <https://www.credit-suisse.com/us/en/about-us/media/news/articles/media-releases/2012/07/en/42035.html>.

boards was noticeable after the 2008 financial crisis. Stocks with women on the board strongly outperformed those without any woman on the board during this time.<sup>109</sup>

Research affirms the financial benefit of gender diversity – particularly on corporate boards, though it is important to understand why it leads to a higher financial performance. According to expert and scientist David Rock and Dr. Heidi Grant at the Neuroleadership Institute, a global neuroscience research organization, diverse team members complement and challenge each other resulting in a more innovative, effective product. As Ximena Hartsock, co-founder of Phone2Action, stated, “If you want a rich product, [you must know that] the outcome is equal to the input. A homogeneous group will create a homogeneous product.”<sup>110</sup>

Diverse teams are smarter because working with people who are different from you challenges your brain to overcome stale ways of thinking, thus sharpening performance.<sup>111</sup> A corporate diversity consultant explains why diversity makes teams smarter:

“We as individuals become smarter, better versions of ourselves when we are working on teams that are diverse,” she told the audience, pointing out that when you’re in a meeting with people who don’t share your background or demographic profile, you sit up a little straighter, intellectually. Expecting more

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<sup>109</sup> Media Relations Credit Suisse AG, “Large-cap companies with at least one woman on the board have outperformed their peer group with no women on the-board by 26% over the last six years, according to a report by credit suisse research institute.”

<sup>110</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>111</sup> Rock, “Why diverse teams are smarter.”

pushback, you become more persuasive. “Our brains just function a little bit differently; we’re more vigilant, we’re more careful.”<sup>112</sup>

Entrenched ways of thinking have a tendency to blind team members to key information, which can lead to errors in decision-making processes.<sup>113</sup> For instance, a study by Northwestern University shows that gender diversity on teams can boost scrutiny of each member’s decision to keep cognitive resources sharp and attentive. Phillips’ team divided up sorority and fraternity members into four-member groups, who read interviews by a detective investigating a murder.<sup>114</sup> A newcomer was later introduced into the group, often of the opposite gender. The team then continued to discuss and deliberate on a murder suspect after listening to the newcomer’s perspective. The findings showed that the diverse group was more likely to guess with accuracy who the suspect should be. Diversity helped to challenge people’s preconceived notions, which respondents described as feeling uncomfortable. The groups with newcomers also felt less confident about the accuracy of their joint decisions, but they were more likely to guess who the correct suspect was, compared to the homogeneous teams.<sup>115</sup>

Another characteristic of diverse teams is that they tend to be more innovative. Rock and Grant argue that one of the best ways to boost capacity is to hire more women and

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<sup>112</sup> Mundy, “Why is Silicon Valley so awful for women?”

<sup>113</sup> Rock, “Why diverse teams are smarter.”

<sup>114</sup> Rock, “Why diverse teams are smarter.”

<sup>115</sup> Katherine W. Phillips, Katie A. Liljenquist, and Margaret A. Neale, “Is the pain worth the gain? The advantages and liabilities of agreeing with socially distinct newcomers,” *Personality and Social Psychology Bulletin* 35 (3) (03/01; 2017/03): 336-50, <http://dx.doi.org/10.1177/0146167208328062>.

culturally diverse team members.<sup>116</sup> For instance, in a study that analyzed levels of gender diversity in research and development teams from over 4,200 companies in Spain, scientists found that companies “with more women were more likely to introduce radical new innovations into the market over a two-year period.”<sup>117</sup> “Leading high-tech companies require diversity to maintain globally competitive technical workforces and that workforce diversity can boost a company’s bottom line by providing a creative variety of thinking styles and, thus, new business solutions.”<sup>118</sup> To stay competitive, organizations have to keep innovating. The benefits of gender diverse teams are applicable to data analytics teams tasked with scrutinizing data and interpreting data in ways that will shape a campaign strategy.

#### *Women bring a unique perspective to teams*

Women bring a unique perspective to teams that helps them to question the status quo and innovate to solve problems. It derives from their cultural roles and outsider status, in which they are less likely to hold positions of power, as evidenced by the gender gap. These outsider viewpoints benefit team outcomes and improve team performance.

The role of women as political consultants and their unique perspectives were explored in “Lady Luck? Women Political Consultants in U.S. Congressional Campaigns.” The 2011 study examined data from congressional campaigns in the late 1990s and the role of

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<sup>116</sup> Rock, “Why diverse teams are smarter.”

<sup>117</sup> Cristina Díaz-García, Angela González-Moreno, and Francisco Jose Sáez-Martínez, “Gender diversity within R&D teams: Its impact on radicalness of innovation,” *Innovation* 15 (2) (06/01/2013): 149-60, <http://dx.doi.org/10.5172/impp.2013.15.2.149>.

<sup>118</sup> Caroline Simard, *Climbing the technical ladder: Obstacles and solutions for mid-level women in technology*, 4.



women consultants. Findings showed that women “bring a unique perspective to the campaign” that would help win campaigns; have a “better understanding of female voters”; and are better equipped to develop messaging that resonates with women voters.<sup>119</sup>

However, my interviewees’ responses on whether these findings are correct were mixed. Ginny Badanes thought the assumption and phrasing lumped women together in a way that implies women are a whole, rather than individuals. However, she clearly sees the value in women’s perspectives:

I’d lean more towards true than false that women bring a unique perspective [to data collection and interpretation], though, in that every team should look for a diversity of opinions and feedback. If women as a group are not included in that equation, then something is missing, and it could be to the detriment of the team.<sup>120</sup>

Showalter expressed a similar view. Women’s perspectives are valuable, and gender diversity could lead to better data collection and interpretation. It should, though, be weighed in a way that considers the uniqueness of the individual:

I think it more comes down to the individual and the skills. Everyone brings their own individual story to interpreting data. And so if you are looking at the results of a poll or putting together a model, there are a lot of different ways to

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<sup>119</sup> Panagopoulos, “Lady luck? Women political consultants in U.S. congressional campaigns,” 255.

<sup>120</sup> Ginny Badanes, email with author, February 3, 2017.

interpret things or to combine variables. So it's certainly possible that women would have different perspectives. For instance, we really need to introduce some variables that reflect intersectionality... those are things that a white male may be less likely to consider to do.<sup>121</sup>

The founders of a small, tech start-up called Penny also grappled with this idea of gender diversity benefiting the team and the product they built. Their product, a chatbot named Penny, has a "female face" that provides empathetic, relatable, financial advice to its users. In the beginning, Penny's responses were written by two men. One of the developer's wives describes the tone Penny took originally:

At first, they started to use a snarky tone [for the chatbot, Penny]. But when you use a winky-faced emoji that can also be seen as flirty. So I told him, I just read this conversation and I think Penny was flirting with me! And he was like, "No way! It's a computer; it can't flirt." And I said, "No, it's a flirty conversation." This is exactly why we need diverse perspectives because he never even thought about that comment being taken that way.<sup>122</sup>

Women's perspectives bring immense value to data interpretation. Women are more likely to take a 360-degree view and to listen for the "yes, but...?" when tackling problems.<sup>123</sup> In the anecdote below, Lake explained a time during the 2016 presidential election cycle when she reconsidered an economic polling question targeted towards

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<sup>121</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

<sup>122</sup> Ito, "Here's what happened when a startup tried affirmative action hiring."

<sup>123</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

women. She tested the common Democratic Party message “balancing work and family” to see how blue-collar women would respond.<sup>124</sup> Lake discovered they were not receptive to this women’s economic message; she described:

For instance, two things we found in our research that were helped by the fact we had so many women on our team involved the Democratic party message of the need for women to have better opportunities to “balance work and family.” That message seemed kind of upscale to me. So we tested it, and it tested horribly with blue collar women. Blue collar women said, “That’s career woman, briefcase-carrying woman talk. I don’t balance work and family; I work *for* my family. I have to *juggle* them all the time, but I’m not balancing them.” And once you hear that you’re like, of course, hello?! We also tested the whole women’s economic message during the campaign, but even women thought the women’s economic message of “equal pay, childcare, paid leave, sick days,” wasn’t a strong enough economic message to get our country going again.<sup>125</sup>

Here, Lake questioned the status quo and resisted an entrenched assumption. Her unique perspective made her attuned to the differences women face. This led to important findings and sharpened insights about this group of women.

When considering major breakthroughs in data collection, some were pioneered by women. Dottie Lynch, a political pollster of over four decades was best known for her

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<sup>124</sup> Democratic National Committee, “THE 2016 DEMOCRATIC PLATFORM,” accessed April 16, 2017, <https://www.democrats.org/party-platform>.

<sup>125</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

work illuminating the varying opinions of female voters during the 1970s and early 1980s. At the time, the political consulting establishment believed women voted similarly to their husbands. Lynch challenged this. She developed a specialized method to explain the gender gap — “a perceived division between male and female views on political issues and candidates — and its potential impact on voting patterns”:

“She’s the person who raised the consciousness of the party leaders on the voter gap between men and women,” Democratic political consultant Bob Squier told The Washington Post in 1983. “She translated it and made people aware of it.”

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Lake provided additional context around the innovations led by women in data collection and interpretation. Because of women’s unique perspectives, they were better able to perceive the differences between women and men and reject incorrect assumptions about their behaviors. These insights helped campaigns become more successful when collecting data to better target voters.

It’s hard to imagine now, but there was a time when pollsters were not breaking the data apart between men and women. Women like myself, Dottie Lynch, [and other female pollsters such as] Kathy Frankovic and Kathleen Hall Jamieson dissected the data and broke men and women apart to identify the gender gap [in voting patterns]. Then fast forward to the 1990s, pollsters were breaking men

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<sup>126</sup> Adam Bernstein, “Dottie Lynch, political pollster who later worked for CBS news, dies at 69,” The Washington Post, August 11, 2014, [https://www.washingtonpost.com/politics/dotty-lynch-political-pollster-who-later-worked-for-cbs-news-dies-at-69/2014/08/11/2aed8ffc-1740-11e4-9349-84d4a85be981\\_story.html](https://www.washingtonpost.com/politics/dotty-lynch-political-pollster-who-later-worked-for-cbs-news-dies-at-69/2014/08/11/2aed8ffc-1740-11e4-9349-84d4a85be981_story.html).

and women apart, but they were treating each group as monolithic. So again, women pollsters and advocates led the way by introducing different variables, such as marital status. We also pioneered the impact of women interviewers. We discovered that when you are talking about women issues, whether that be talking about a woman candidate, equal rights, or abortion, women and men interviewed by women responded differently, compared to men interviewing men and women.<sup>127</sup>

### *Women are more collaborative*

According to 2013 research by the National Bureau of Economic Research, women prefer collaboration, and men are more likely to distrust their coworkers and desire to work alone. The scientists explain that in a series of experiments, women showed greater attraction to cooperative incentives due to their more optimistic assessments of a teammate's ability. Conversely, men show a greater responsiveness to efficiency gains associated with team production, rather than collaboration.<sup>128</sup> The research suggests men prefer working alone, as they are overconfident in their abilities and often too distrusting of their coworkers'.<sup>129</sup>

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<sup>127</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

<sup>128</sup> Peter Kuhn and Marie Claire Villeval, "Are women more attracted to Co-operation than men?" *The Economic Journal*, 125 (582) (2015): 115-40.

<sup>129</sup> Samantha Olson, "Gender differences in the workplace: Women prefer collaboration, while men distrust their coworkers and desire to work alone," *Medical Daily*, August 22, 2013, <http://www.medicaldaily.com/gender-differences-workplace-women-prefer-collaboration-while-men-distrust-their-coworkers-and>.

The interviews I conducted with data and tech experts, of whom many were women, underscore these research findings. Showalter explained that on the Obama 2012 campaign, she and her deputy “consciously tried to create a welcoming atmosphere” which included downplaying hierarchy.<sup>130</sup> She confirmed the dynamics between team members were “good,” and women and men collaborated well.<sup>131</sup> When she was a freelancer, she frequently worked alone and was disconnected from teams. She believes that working alone for too long can take a toll on innovation and learning new skills. In the following, she explained the downside to this isolation and how it spurred her to start her own firm.

When you’re working alone, it can start to feel like you are regurgitating things. You don’t have as many opportunities to work on different projects and get new skills and learn from other people. So I started to feel after four years that I was doing the same thing and dispensing the same advice. When you have more people, you have the capacity to take on more types of projects, and that’s a good thing because you have to collaborate and figure out how you’re going to tackle these problems and complete the projects.<sup>132</sup>

She also discussed how she likes to hire diverse teams with different skills sets, and that she is neither afraid nor intimidated of someone who is “smarter” working for her. This attitude is more likely to foster a diverse team, leading to campaign success:

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<sup>130</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

<sup>131</sup> <sup>131</sup> Ibid.

<sup>132</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

I can't tell what my own gender makes me do, but my sense is that women leaders are more comfortable hiring people that have diverse skill sets that make the people working for them more qualified than they are in certain ways.<sup>133</sup>

She went on to explain why women are more comfortable hiring and collaborating with teams. Women are more conscious of their insecurities and weaknesses. Thus, they are accustomed to identifying solutions to compensate for those weaknesses, which can mean hiring talent who excel in areas where they may not be as strong:

My guess is that men do have insecurities, while we women have to learn to live with our insecurities. We deal with them throughout our lives, so we get used to it. Of course, I'm not going to be the smartest person, and I will hire those people, and it will be great...When you hear about tech dudes that have to prove they are the best coder in the room, and they don't hire anyone better than them, I think of that as an instinctually male quality.<sup>134</sup>

According to Hartstock, "Many argue that women are more productive... more collaborative, and more positive in competition. All those things impact productivity. So if you have women on the team, you'll get a lot done."<sup>135</sup>

Lake's company is a diverse team of over 50 percent women and is the only political polling firm with two female partners. She has found women to be more collaborative than men as well:

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<sup>133</sup> Ibid.

<sup>134</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

<sup>135</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

I think women will have a more collegial consensus process and are good listeners... we find patterns and have strong emotional intelligence. They are also more likely to say 'the emperor has no clothes...' I think women welcome diverse teams. That's another advantage. We're more open to diversity.<sup>136</sup>

*Women are often agents of diversity*

Women are often agents of diversity. They promote the benefits of diverse teams, including but not limited to gender diversity. Their tendency toward collaboration combined with their openness to talent in a variety of forms increases the likelihood of women to assemble diverse teams that will improve upon data collection and interpretation.

I asked Showalter and Badanes to describe their ideal team makeup if they could staff a team any way they would like. Their answers demonstrate the impact of diversity on teams and their willingness to prioritize it as a key factor.

I'd look for people who have strengths and viewpoints that are different than mine. I would certainly set out to create a diverse team.<sup>137</sup>

I'd want a diverse team. I'd want people from different gender and race backgrounds, and also people from different skill backgrounds. It's a good idea to stack a team with different skills sets. There are different ways to solve a problem, machine learning or progression model, or crunching numbers in excel.

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<sup>136</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

<sup>137</sup> Ginny Badanes, email with author, February 13, 2017.



There are lots of ways! So getting people that come from different mindsets are a good idea, and it often coincides with other types of diversity.<sup>138</sup>

Hartsock explained what motivates the selection of new tech and data hires at Phone2Action and how it is inextricably linked to the benefits of diversity. For a product to be successful, the team developing it must be diverse. This increases the likelihood team members will not take things at face value, but rather will scrutinize:

We try to identify and hire people who are very strong minded, in the sense that they aren't "yes" people or they aren't people that just like to work with "yes" people – because both are bad. And by hiring like that, we are able to generate more diverse, integrated ideas and a stronger team. And it also puts a value on the data side.<sup>139</sup>

Showalter underscored how ethnic diversity on data teams could help ensure that data scientists are not heavy handed with assigning – or categorizing - voter files, particularly with useful variables like race. For example, data scientists sometimes have to assign a voter file a race based on his or her last name. To a white person, the differences of Filipino or Hispanic may not seem significant, but to someone with that cultural and racial distinction, the differences are meaningful.<sup>140</sup> The issue at hand is not necessarily that big data discriminate, but these failures by data analysts misinterpret the

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<sup>138</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

<sup>139</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>140</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

findings.<sup>141</sup> These types of errors could be mitigated by increasing diversity of data teams.<sup>142</sup>

Diverse voices on teams can act as a firewall to stale ways of thinking that weaken performance. Hartsock explained one of her most successful advocacy campaigns was enhanced by her team's diverse perspectives. The Phone2Action advocacy tool's messaging is targeted so it resonates with various audiences:

We even had people who were older who could provide feedback on how senior citizens would respond to it. I think all of the different perspectives helped the campaign be successful because more people were receptive [to the messaging]. It was dynamic and versatile. We had different templates, different message for legislators. That diversity was critical to win.<sup>143</sup>

As leaders in their businesses, my female interview respondents explained how they champion diversity in their professional work. This is important because diversity and inclusion consultants assert diversity begins at the top, where a company's intentions are reflected by who holds the most power.<sup>144</sup> By including diverse voices at the highest ranks, the organization sends a message that they value diversity, which will further help attract diverse talent.

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<sup>141</sup> Pradip Sigdya, "Critics allege big data can be discriminatory, but is it really bias?" *CNBC*, May 8, 2016, <http://www.cnbc.com/2016/05/07/critics-allege-big-data-can-be-discriminatory-but-is-it-really-bias.html>.

<sup>142</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

<sup>143</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>144</sup> Eric Rosenbaum, "The 10 global companies trying to lead on diversity: Study" *CNBC*, April 25, 2015, <http://www.cnbc.com/2015/04/24/the-10-global-companies-trying-to-lead-on-diversity:-study.html>.

Hartsock, a woman of color, described how the joint leadership structure works well at Phone2Action, as each brings a diverse skill set and life experience to the table:

My partner is a white male. He has a business degree and an MBA. I have a degree in philosophy and a graduate degree in leadership and policy. So in that sense, our degrees and experiences complement each other. He also comes from a business industry, while I come from a policy industry and public administration. I find that it is very important to have diverse teams in every aspect of it - background, experience, also ethnicity, and gender. Then you don't have homogeneous ideas; you're not talking to a mirror that is always going to say yes to you... it's important that that person would also be able to say no as well. That applies to my co-founder and also the entire company.<sup>145</sup>

Hartsock further explained – quite passionately – that the leadership structure at Phone2Action sends a powerful signal that the company champions gender diversity. This has allowed them to foster diverse teams leading to campaign success.

Women are empowered [at Phone2Action], and the ratio of women and men is balanced. There is also a balance of power... bosses and managers are mixed and balanced. We send a lot of messages, and we have a lot of symbolism that women matter and their opinions matter. We have a lot of women chiefs. Women aren't just in the third layer of the company. And we have men that have to report to these women. It's important to look at the power structure. If

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<sup>145</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

you really want women to have an opinion, you have to give them the opportunity to do so and with the title. We provide these opportunities, but at other companies, there is a lot of talk about women having a voice, but when you look at the managers, they are all male. When you hire strong women, they believe there is a space to grow, and they have a voice.<sup>146</sup>

Showalter shared a similar experience. She launched her data analytics firm with her deputy from the 2012 Obama campaign, who also happens to be a white male.

Part of why I'm excited to start this firm with my deputy Evan was we have these complimentary skills where I'm good at analyzing data, building models, kind of the statistical side of things. And he comes from a computer programming background, so he has the hard tech skills... I like to hire and work with people who have different skill sets than me.<sup>147</sup>

Diversity can certainly take many forms – whether that be gender, racial, cultural, or many others. Lake, emphasizing a need for class diversity among political consultants, cited her red state, middle-class sensibilities as a factor that enables her to interpret data more effectively:

I think another type of diversity we need among consultants is class diversity. Now once you're a consultant, you're going to tend to be college educated, and you're going to live on the coast. I feel that even to this day, my consulting is

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<sup>146</sup> Ibid.

<sup>147</sup> Amelia Showalter, interview by Allison Kopp, December 7, 2016, transcript.

stronger because I grew up in rural Montana on a ranch... I went to high school where half the kids didn't go to college. And I think red-state sensibilities are important, that class diversity. You're just better off.<sup>148</sup>

Showalter also underlined this point in her account that political campaigns should strive for building teams that reflect all of America:

Especially when you are dealing with politics, you need people who understand different geographies and socioeconomic statuses. I come from a family who are all liberals, and my mom has a Harvard degree like me. I don't have a great understanding of how a lot of America lives. And when you work in politics, you're trying to understand how a lot of America lives. If you can have more of America in the room to do that, it's a good idea. And that's true of politics in a very direct way, but it's true of tech when you're trying to sell a product. You have to understand who you are trying to sell to.<sup>149</sup>

Skeptics of diversity's benefits question whether gender and ethnicity differences improve team outcomes; they would argue teams should be assembled based on diversified skill sets, rather than considering other types of diversity. Hartsock raised an important point about this issue:

The more diverse the team, the more of a diverse perspective. Diverse groups of people complement each other and that makes a stronger product and

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<sup>148</sup> Celinda Lake, interview by Allison Kopp, February 12, 2017, transcript.

<sup>149</sup> Amelia Showalter, interview by Allison Kopp, February 2, 2017, transcript.

campaign outcome. But, diversity should not just be a check box. Minorities don't want to be put on a team because they are a person of color or a woman. That's an insult. They want to be put on the team because they have the skills to be part of the team.<sup>150</sup>

## Chapter 6: Conclusion

News outlets recently revealed that Uber top executives left the company<sup>151</sup> amid growing criticisms of sexual harassment and a profoundly “unrestrained work culture.”<sup>152</sup> These issues were brought into the national spotlight in February 2017 by a former female tech employee who confessed that she experienced incessant sexism from male colleagues, which the human resources department allegedly dismissed.<sup>153</sup> These types of stories continue to send shockwaves through the tech industry, bruising its reputation<sup>154</sup> and illustrate how conversations about achieving better gender diversity in the workplace are more relevant than ever.

### KEY FINDINGS

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<sup>150</sup> Ximena Hartsock, interview by Allison Kopp, January 27, 2017, transcript.

<sup>151</sup> Mike Isaac, “Two Executives to Leave Uber, Adding to Departures,” *The New York Times*, March 19, 2017, <https://www.nytimes.com/2017/03/19/business/jeff-jones-leaves-uber-ride-sharing-president.html>.

<sup>152</sup> Mike Isaac, “Inside Uber’s Aggressive, Unrestrained Workplace Culture,” *The New York Times*, February 22, 2017, <https://www.nytimes.com/2017/02/22/technology/uber-workplace-culture.html>.

<sup>153</sup> Susan J. Fowler, “Reflecting On One Very, Very Strange Year At Uber,” February 19, 2017, <https://www.susanjefeller.com/blog/2017/2/19/reflecting-on-one-very-strange-year-at-uber>.

In chapter 2, I examined the rise of big data as a new capability necessary for campaigns to target voters. The rise of big data has introduced statistics— a STEM capability — into political consulting on a larger, more influential scale. Data analytics teams give campaigns a competitive edge. This is evidenced in the last, two winning presidential campaigns where both Obama and Trump leveraged big data strategies. These innovations allowed them to develop more precise, targeted messaging to get out the vote and win. The rise of the political consulting industry drives the rise in the use of big data on campaigns — and consulting firms too are evolving. In 2015 alone, spending on consultants by candidates from both parties and their affiliated super PACs surpassed previous campaigns totaling \$163 million.<sup>155</sup> That said, experts contend the real authority on big data analytics comes from consultants, since much of the data collection and interpretation is outsourced to them. Bottom line, big data have the ability to make or break a campaign.

In chapter 3, I evaluated the stark gender gap across various industries. Women currently hold only 5.8 percent of CEO positions out of the S&P 500 companies.<sup>156</sup> Women are also underrepresented in political consulting and in STEM fields. The latest data available show that only 19 percent of principals at political consulting firms are women. Additionally, women comprise 30 percent of the American Association of Political Consultants (AAPC) membership base, while only 24 percent of working women are considered STEM workers. Women also are more likely to leave STEM jobs

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<sup>155</sup> Adam Sheingate, “The political consultant racket.”

<sup>156</sup> Catalyst, “Women CEOs of the S&P 500.”

compared to men in those fields and other women working in non-STEM professions. Top tech companies are also under scrutiny to tackle the gender gap and hostile work environments that fail to foster gender diverse teams. For example, 31 percent of Google's overall workforce is now female, up one percentage point over the previous year; and at Facebook, women's overall representation is 33 percent.

In chapter 4, I argued that monolithic teams benefit men and contribute to stalling women's advancement. I examined the following key factors of these teams. First, men's biases towards women's technical skills and women's internalized biases regarding their own skills hinder women's advancement. Women feel unwelcome and as if they do not "fit-in" because their technical competencies are more scrutinized. Second, elements of male-dominated workplaces can be isolating and hostile towards women. This includes fiercely competitive workplaces; gender dynamics that marginalize women's contributions; and women's difficulties with balancing work and family responsibilities. Lastly, informal networks that benefit men and a lack of female role models have also stalled women's advancement.

Given these factors, retaining and recruiting women in STEM jobs remains a serious obstacle to overcome. This obstacle is self-perpetuating as well: women are often agents of diversity. Without women in STEM, companies will be challenged to recruit and retain female workers; teams will therefore remain homogeneous.

I contended in chapter 5 that gender diversity benefits teams and could contribute to better data collection and interpretation on a campaign. Women tend to champion



diversity and promote its benefits. Therefore, they are reliable agents of diversity:

women are more likely to assemble a diverse team - beyond just gender - which will improve data collection and interpretation to make a campaign more effective.

Research shows that companies in the top quartile for gender diversity were 15 percent more likely to have returns above the industry mean.<sup>157</sup> Other studies suggest diverse teams weigh facts more objectively, and process and reexamine those facts more critically. Diverse teams are thus better able to solve problems and more likely to innovate. This trait is especially valuable in STEM professions, like data analytics, where innovation gives advocacy and political campaigns an edge over their opponent.

My research illustrated that women bring unique perspectives based on their cultural roles and outsider status that lead them to question the status quo and innovate. They are able to identify blind spots and question blanket assumptions – that if not considered – could have made a product or campaign less successful. Women also tend to be more collaborative, and can foster a more collegial, inclusive team environment.

These findings suggest a homogeneous data analytics team could have negative implications on the future of big data. As big data continue to grow on campaigns, building diverse teams should be a priority for campaigns to maintain a competitive, technical edge. Failing to build diverse teams could compromise data's effectiveness and accuracy. Because women are often agents of diversity, they can help to build competitive, diverse teams that are more likely to innovate.

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<sup>157</sup> Hunt, "Why diversity matters."

## RECOMMENDATIONS

Given the findings above, public affairs and political consulting agencies, and campaigns should do the following to grow gender diversity in political tech consulting:

- **Diversify executive leadership:** Promoting women to executive leadership sends a strong signal that gender diversity is valued at the company. Raising the visibility of women leaders will attract more women to the organization and help to retain women employees.
- **Staff more project teams with women who are leads or co-leads:** Sharpen team outcomes by staffing women as managers or co-leads on high-visibility projects. Women in leadership propagates diversity and will make a team more innovative and process facts more effectively.
- **Establish recruiting objectives with human resources departments:** Ensure staff responsible for hiring are aware of the company's objective to grow gender diversity. This will encourage teams to expand their network to recruit women talent with STEM capabilities.
- **Apply pressure to political and public affairs trade associations to develop resources directed at growing gender diversity:** Agencies should seek support from their trade associations on this issue. For example, trade associations should provide professional development and training that helps firms grow gender diversity. This could also spur trade associations to vigilantly monitor the numbers of women employed in political tech work.

- **Consider hiring a diversity and inclusion consultant:** Firms should consider contracting a diversity and inclusion consultant to evaluate the current work environment and diversity challenges. They would then make specific recommendations for the company to diversify its teams and advance women.
- **Encourage participation in women’s professional networking groups:** Women employees should feel empowered to join professional networking groups. This could mean assembling an informal women’s networking group, or subsidizing membership dues for a professional networking group. Each would help grow women’s professional networks and mentorship opportunities.

#### *LOOKING AHEAD AND UNANSWERED QUESTIONS*

The CEO and executive director of the UN Global Compact, Lise Kingo, raised an important point in her recent March 2017 commentary on *CNBC*:

Just one year ago, when surveying the representation of women in the global workplace, I asked whether we were amidst a "snowball" moment or a "Sisyphus" moment – meaning whether all the hard-won advancements in gender equality over the last few decades were building momentum towards break through, or taking two steps back with every step forward... We appear to be amidst a worldwide inflection point, and the answer is not entirely clear.<sup>158</sup>

We are at a juncture where studies show diversity improves team performance. We also know technology is rapidly advancing and will increasingly require more of our

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<sup>158</sup> Lise Kingo, "Closing the gender gap can eliminate a big roadblock to growth."

workforce. While women occupy barely a quarter of STEM jobs, efforts are underway to encourage girls and women to enter into the field.

As we move into this next generation, we need diverse voices at the table to ensure we have the most equipped teams to take on this challenge. Closing the gender gap is a part of this solution. Activities by organizations show that the dialogue is happening. Change is happening, slowly but surely.

This paper provides an impetus for further inquiry into the understudied facet of political campaigns and rates of gender diversity. Political consulting trade associations could do more to track gender diversity in the industry and make that information public for social scientists to further explore. In addition, further research should be conducted comparing campaigns supported by data teams led by women versus by men. Are women-led teams or agencies more likely to win campaigns compared to those led by men?

Lastly, further research should examine the potential benefits of diversity beyond gender, including geographic and class. Can these types of diversity of background help to sharpen a team's performance?

Big data will continue to grow and adapt to campaign needs. To stay competitive and effective, data teams need diverse voices and perspectives. Not only do women bring a critical voice to the table to sharpen performance, they are often agents of diversity.

## Bibliography

- Accenture, and Girls Who Code. 2016. *Cracking the Gender Code*. Accenture.com. <https://www.accenture.com/us-en/cracking-the-gender-code?src=JB-11540> (accessed November 30, 2016).
- Beninger, Anna. October 23, 2014. *High potentials in tech-intensive industries: The gender divide in business roles*. Catalyst.org: Catalyst.
- Bernstein, Adam. Dotty lynch, political pollster who later worked for CBS news, dies at 69. *The Washington Post*, August 11, 2014. Available from [https://www.washingtonpost.com/politics/dotty-lynch-political-pollster-who-later-worked-for-cbs-news-dies-at-69/2014/08/11/2aed8ffc-1740-11e4-9349-84d4a85be981\\_story.html?utm\\_term=.131d2901c971](https://www.washingtonpost.com/politics/dotty-lynch-political-pollster-who-later-worked-for-cbs-news-dies-at-69/2014/08/11/2aed8ffc-1740-11e4-9349-84d4a85be981_story.html?utm_term=.131d2901c971) (accessed March 21, 2017).
- Blum, Lenore, and Carol Frieze. 2005. In a more balanced computer science environment, similarity is the difference. *Computing Research News* 17 (3) (May 2005).
- Catalyst. Women CEOs of the S&P 500. Catalyst, March 14, 2017. Available from <http://www.catalyst.org/knowledge/women-ceos-sp-500> (accessed March 21, 2017).
- . Women in management. Catalyst, February 7, 2017. Available from <http://www.catalyst.org/knowledge/women-management> (accessed March 21, 2017).
- Coppola, Adriana. Forget the manifesto: Big data will win future elections. *The Guardian*, May 6, 2015. Available from <https://www.theguardian.com/media-network/2015/may/06/general-election-big-data-marketing-electioneering> (accessed March 21, 2017).
- Corbett, Christianne. 2015. *Solving the equation: The variables for Women's success in engineering and computing*. American Association of University Women.
- Correll, Shelley, and Lor Mackenzie. September 13, 2016. *To succeed in tech, women need more visibility*. [www.hbr.org](http://www.hbr.org): *Harvard Business Review*.
- Democratic National Committee. "THE 2016 DEMOCRATIC PLATFORM." Available from <https://www.democrats.org/party-platform> (accessed April 16, 2017).
- Díaz-García, Cristina, Angela González-Moreno, and Francisco Jose Sáez-Martínez. 2013. Gender diversity within R&D teams: Its impact on radicalness of innovation. *Innovation* 15 (2) (06/01): 149-60, <http://dx.doi.org/10.5172/impp.2013.15.2.149>.

- ELY, ROBIN J., HERMINIA IBARRA, and DEBORAH M. KOLB. 2011. Taking gender into account: Theory and design for women's leadership development programs. *Academy of Management Learning & Education* 10 (3) (09): 474-93, <http://proxygw.wrlc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=67074186&site=ehost-live>.
- Susan J. Fowler. "Reflecting On One Very, Very Strange Year At Uber." February 19, 2017. <https://www.susanjowler.com/blog/2017/2/19/reflecting-on-one-very-strange-year-at-uber>.
- Galinsky, Adam D., Andrew R. Todd, Astrid C. Homan, Katherine W. Phillips, Evan P. Apfelbaum, Stacey J. Sasaki, Jennifer A. Richeson, Jennifer B. Olayon, and William W. Maddux. 2015. Maximizing the gains and minimizing the pains of diversity. *Perspectives on Psychological Science* 10 (6) (11/01; 2017/03): 742-8, <http://dx.doi.org/10.1177/1745691615598513>.
- Glass, Jennifer, and Sharon Sassler and Yael Levitte and Katherine M. Michelmore et. al. 2013. What's so special about STEM? A comparison of Women's retention in STEM and professional occupations." *Social Forces* 92, no. 2 (2013): 723-756.
- Green, Joshua, and Issenberg, Sasha. Inside the trump bunker, with days to go. *Bloomberg Businessweek*, October 27, 2016. Available from <https://www.bloomberg.com/news/articles/2016-10-27/inside-the-trump-bunker-with-12-days-to-go> (accessed March 21, 2016).
- Hancock, Adrienne B., and Benjamin A. Rubin. "Influence of communication partner's gender on language." *Journal of Language and Social Psychology* 34, no. 1 (2015): 46-64.
- Hempel, Jessi. Melinda gates has a new mission: Women in Tech. *Back Channel*, September 28, 2016. Available from <https://backchannel.com/melinda-gates-has-a-new-mission-women-in-tech-8eb706d0a903#.o8onickwz> (accessed November 1, 2016).
- Hope, Bradley. Inside donald Trump's data analytics team on election night. *The Wall Street Journal*, November 9, 2016. Available from <https://www.wsj.com/articles/inside-donald-trumps-data-analytics-team-on-election-night-1478725225> (accessed March 21, 2016).
- Hunt, Vivian, Layton, Dennis and Prince, Sara. Why diversity matters. McKinsey & Company, January 2015. Available from <http://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters> (accessed March 21, 2016).

- Ibarra, Herminia, Robin Ely, and Deborah Kolb. "Women rising: The unseen barriers." *Harvard Business Review* 91, no. 9 (2013): 60-66.
- Isaac, Mike. Two Executives to Leave Uber, Adding to Departures. *The New York Times*, March 19, 2017. Available from <https://www.nytimes.com/2017/03/19/business/jeff-jones-leaves-uber-ride-sharing-president.html? r=1>.
- Isaac, Mike. Inside Uber's Aggressive, Unrestrained Workplace Culture. *The New York Times*, February 22, 2017. Available from <https://www.nytimes.com/2017/02/22/technology/uber-workplace-culture.html>.
- Issenberg, Sasha. A more perfect union, how Obama's team used big data to rally voters. *MIT Technology Review*, December 19, 2012. Available from <https://www.technologyreview.com/s/509026/how-obamas-team-used-big-data-to-rally-voters/> (accessed March 21, 2016).
- Ito, Aki, and Huet, Ellen. Here's what happened when a startup tried affirmative action hiring. *Bloomberg*, January 10, 2017. Available from <https://www.bloomberg.com/news/articles/2017-01-10/what-happened-when-a-startup-tried-affirmative-action-hiring> (accessed February 1, 2017).
- Kingo, Lise. Closing the gender gap can eliminate a big roadblock to growth. *CNBC*, March 7, 2017. Available from <http://www.cnbc.com/2017/03/07/international-womens-day-is-the-time-to-end-gender-bias-commentary.html> (accessed March 21, 2017).
- Klawe, Maria. At harvey mudd college, the ratio of women in computer science increased from 10% to 40% in 5 Years. *Back Channel*, February 26, 2016. Available from <https://backchannel.com/at-harvey-mudd-college-the-ratio-of-women-in-cs-increased-from-10-to-40-in-5-years-4bb72e909fbd#.cl8yzrsqh> (accessed November 1, 2016).
- Kranish, Michael. Trump's plan for a comeback includes building a 'psychographic' profile of every voter. *The Washington Post*, October 27, 2016. Available from [https://www.washingtonpost.com/politics/trumps-plan-for-a-comeback-includes-building-a-psychographic-profile-of-every-voter/2016/10/27/9064a706-9611-11e6-9b7c-57290af48a49\\_story.html?utm\\_term=.2fff818e3143](https://www.washingtonpost.com/politics/trumps-plan-for-a-comeback-includes-building-a-psychographic-profile-of-every-voter/2016/10/27/9064a706-9611-11e6-9b7c-57290af48a49_story.html?utm_term=.2fff818e3143) (accessed March 21, 2017).
- Kuhn, Peter, and Marie Claire Villeval. 2015. Are women more attracted to Cooperation than men? *The Economic Journal* 125 (582): 115-40.

- Levine, Sheen S., Evan P. Apfelbaum, Mark Bernard, Valerie L. Bartelt, Edward J. Zajac, and David Stark. 2014. Ethnic diversity deflates price bubbles. *Proceedings of the National Academy of Sciences* 111 (52) (December 30): 18524-9.
- Mannix, Elizabeth, and Margaret A. Neale. 2005. What differences make a difference? *Psychological Science in the Public Interest* 6 (2) (10/01; 2017/02): 31-55, <http://dx.doi.org.proxygw.wrlc.org/10.1111/j.1529-1006.2005.00022.x>.
- Martin, Rachel. How trump waged an under-the-radar ground game. *NPR*, December 6, 2016. Available from <http://www.npr.org/2016/12/06/504520364/how-trump-waged-an-under-the-radar-ground-game> (accessed March 21, 2016).
- Media Relations Credit Suisse AG. Large-cap companies with at least one woman on the board have outperformed their peer group with no women on the-board by 26% over the last six years, according to a report by credit suisse research institute. *Credit Suisse*, July 31, 2012. Available from <https://www.credit-suisse.com/us/en/about-us/media/news/articles/media-releases/2012/07/en/42035.html> (accessed March 21, 2017).
- Dan Misener, "Study raises questions about gender bias in the world of coding," *CBS News*, February 16, 2016, accessed April 15, 2017, <http://www.cbc.ca/news/technology/study-raises-questions-about-gender-bias-in-the-world-of-coding-1.3450186>
- Mundy, Liza. Why is Silicon Valley so awful to women? *The Atlantic*, April 2017. Available from <https://www.theatlantic.com/magazine/archive/2017/04/why-is-silicon-valley-so-awful-to-women/517788/> (accessed March 21, 2017).
- Nickerson, David W., and Todd Rogers. 2014. Political campaigns and big data. *The Journal of Economic Perspectives* 28 (2): 51-73.
- Olson, Samantha. Gender differences in the workplace: Women prefer collaboration, while men distrust their coworkers and desire to work alone. *Medical Daily*, August 22, 2013. Available from <http://www.medicaldaily.com/gender-differences-workplace-women-prefer-collaboration-while-men-distrust-their-coworkers-and> (accessed March 21, 2017).
- Panagopoulos, Costas, David A. Dulio, and Sarah E. Brewer. 2011. Lady luck? Women political consultants in U.S. congressional campaigns. *Journal of Political Marketing* 10 (3) (07/01): 251-74, <http://dx.doi.org.proxygw.wrlc.org/10.1080/15377857.2011.588103>.



- Parti, Tarini. Big changes in a cutthroat industry. *Politico*, September 11, 2014. Available from <http://www.politico.com/story/2014/09/political-consulting-110834> (accessed March 21, 2016).
- Phillips, Katherine W., Katie A. Liljenquist, and Margaret A. Neale. 2009. Is the pain worth the gain? the advantages and liabilities of agreeing with socially distinct newcomers. *Personality and Social Psychology Bulletin* 35 (3) (03/01; 2017/03): 336-50, <http://dx.doi.org/10.1177/0146167208328062>.
- Phillips, Katherine W., Lount, Robert B., Sheldon, Oliver and Rink, Floor. The biases that punish racially diverse teams. *Harvard Business Review*, February 22, 2016. Available from <https://hbr.org/2016/02/the-biases-that-punish-racially-diverse-teams> (accessed March 21, 2017).
- Robb, Alice “Why men are prone to interrupting women.” *The New York Times*, March 19, 2015, accessed April 15 2017  
<http://nytlive.nytimes.com/womenintheworld/2015/03/19/google-chief-blasted-for-repeatedly-interrupting-female-government-official/>.
- Roberts, Deon. ‘Good ol’ boy club’: Bank of America exec describes former employer. *The Charlotte Observer*, March 8, 2017. Available from <http://www.charlotteobserver.com/news/business/banking/bank-watch-blog/article137274948.html> (accessed March 21, 2017).
- Rock, David, and Grant, Heidi. Why diverse teams are smarter. *Harvard Business Review*, November 4, 2016. Available from <https://hbr.org/2016/11/why-diverse-teams-are-smarter> (accessed January 20, 2017).
- Rock, David, Grant, Heidi and Grey, Jacqui. Diverse teams feel less comfortable — and That’s why they perform better. *Harvard Business Review*, September 22, 2016. Available from <https://hbr.org/2016/09/diverse-teams-feel-less-comfortable-and-thats-why-they-perform-better> (accessed March 21, 2016).
- Rosenbaum, Eric. The 10 global companies trying to lead on diversity: Study. *CNBC*, April 24, 2015. Available from <http://www.cnbc.com/2015/04/24/the-10-global-companies-trying-to-lead-on-diversity:-study.html>.
- Sandberg, Sheryl. 2013. *Lean in: Women, work, and the will to lead*. Alfred A. Knopf.
- Shapiro, Jenessa R., and Amy M. Williams. 2012. The role of stereotype threats in undermining girls' and women's performance and interest in STEM fields. *Sex Roles* 66 (3-4) (Feb 2012): 175-83, <http://search.proquest.com.proxygw.wrlc.org/docview/919688864?accountid=11243>.

- Sheingate, Adam. The political consultant racket. *The New York Times*, December 30, 2015. Available from [https://www.nytimes.com/2015/12/30/opinion/campaign-stops/the-political-consultant-racket.html?\\_r=1](https://www.nytimes.com/2015/12/30/opinion/campaign-stops/the-political-consultant-racket.html?_r=1) (accessed March 21, 2016).
- Simard, Caroline, Andrea Davies Henderson, Shannon Gilmartin, Londa Schiebinger, and Telle Whitney. 2008. *Climbing the technical ladder: Obstacles and solutions for mid-level women in technology*. Palo Alto and Stanford: Anita Borg Institute for Women and Technology; the Michelle R. Clayman Institute for Gender Research at Stanford University.
- SmartGirls Staff. DC mayor muriel bowser takes a stand for Climate Change! Amy Poehler's Smart Girls, March 15, 2017. Available from <https://amysmartgirls.com/today-march-15th-2017-female-mayors-and-female-business-leaders-from-cities-across-the-globe-6c8f42d56583#.g4jnts78m> (accessed March 21, 2017).
- Snyder, Kieran. "How to Get Ahead as a Woman in Tech: Interrupt Men." *Slate.com*, July 24, 2014, accessed April 15, 2017, [http://www.slate.com/blogs/lexicon\\_valley/2014/07/23/study\\_men\\_interrupt\\_women\\_more\\_in\\_tech\\_workplaces\\_but\\_high\\_ranking\\_women.html](http://www.slate.com/blogs/lexicon_valley/2014/07/23/study_men_interrupt_women_more_in_tech_workplaces_but_high_ranking_women.html).
- Terrell, Josh, Andrew Kofink, Justin Middleton, Clarissa Rainear, Emerson Murphy-Hill, Chris Parnin, and Jon Stallings. *Gender differences and bias in open source: Pull request acceptance of women versus men*. No. e1733v2. PeerJ Preprints, 2016.
- White, April. Women in tech: Breaking the digital ceiling. *Harvard Business School*, March 10, 2015. Available from [https://www.alumni.hbs.edu/stories/Pages/story-bulletin.aspx?num=4494&utm\\_campaign=Socialflow&utm\\_source=Socialflow&utm\\_medium=Tweet](https://www.alumni.hbs.edu/stories/Pages/story-bulletin.aspx?num=4494&utm_campaign=Socialflow&utm_source=Socialflow&utm_medium=Tweet); (accessed November 12, 2016).
- Wilkins, Ebonye G. Women & STEM: It's not just a numbers problem. Haas Institute. May 11, 2016. Available from <http://haasinstitute.berkeley.edu/women-stem-its-not-just-numbers-problem> (accessed March 20, 2017).
- Williams, Joan C. Hacking Tech's diversity problem. *Harvard Business Review*, October 2014. Available from <https://hbr.org/2014/10/hacking-techs-diversity-problem>; (accessed November 16, 2016).

## Appendix

The five interview respondents were:

1. **Amelia Showalter:** Democratic-leaning woman, who was a director of digital and data analytics during the Obama 2012 campaign, who experienced many of the breakthrough big data strategies firsthand. She currently is a co-founder of a new, start-up agency specializing in data analytics consulting.
2. **Matthew Atkinson:** Republican-leaning man, who is a digital director at Cambridge Analytica, one of the only consulting firms hired by the Trump campaign to support its big data analytics. During the 2016 election cycle, he was a project-lead for a right-of-center Super PAC client.
3. **Celinda Lake:** Democratic-leaning woman, who is president of Lake Strategies, a progressive candidate and issue polling firm. She was part of a group of women who led breakthroughs in collecting and interpreting polling data about women and the gender gap.
4. **Ximena Hartstock:** Democratic-leaning woman, who is the co-founder of tech political consulting company, Phone2Action, with clients spanning electoral and advocacy campaigns.
5. **Ginny Badanes:** Republican-leaning woman, who works for a Fortune-10 tech company, Microsoft and advises on tech strategy. She also was a key advisor to the RNC on best practices for storing and cleaning big data during the 2016 campaign cycle.