1. **In my work on diversity and inclusion, I have often spoken about the benefits of diversity, not only for communities of color but for the company itself. How are tech companies uniquely positioned to benefit by harnessing the value of diverse employees?**

Tech companies provide products central to our daily lives. The largest tech companies leverage large data sets to make predictions about our behavior. These data sets are used for machine learning, predictive analytics and artificial intelligence.[1] Algorithms then process these data sets and information is outputted that is used to screen employees, allocate credit, make policing decisions, and even recognize faces.[2]

As a result of continuous innovation in the tech industry, very large data sets and sophisticated algorithms are being utilized more and more frequently that make observations and predictions about individuals and their likely behaviors, demographics, affiliations and socio-economic status.[3] The predictive analytics and software created by the tech industry is used by businesses and other organizations to make quick and efficient decisions grounded in their ability to make predictions based on large amounts of data.[4] In certain cases, data is based upon actual demographic information—such as age or gender—and in other cases, companies can actually estimate race and other demographic information based on where individuals live, their online activities and other factors.[5] It is clear that there are many outcomes resulting from using these powerful datasets that are influencing our society, including politics, law, medicine, industry, markets for economic opportunity and our personal lives. They have the potential to expand opportunity for all Americans if used responsibly.

However, these digital tools present an even greater potential for misuse if they lock in and exacerbate our country's longstanding disparities based on race, gender, and other characteristics.[6] My written testimony, as well as that of other panelists provided numerous examples of these failed efforts likely resulting from the failure to leverage diverse teams. This highlights the need to examine algorithms and big data in the context of their effects on society

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[1] Buolamwini and Gebru, "Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification." 81 Proceedings of Machine Learning Research 1 (2018) Conference on Fairness, Accountability, and Transparency, available at https://www.media.mit.edu/publications/gender-shades-intersectional-accuracy-disparities-in-commercial-gender-classification/ (last visited March 3, 2019).

[2] Best-Rowden, Lacy and Jain, Anil, "Longitudinal Study of Automatic Face Recognition," 40 IEEE Transactions on Pattern Analysis and Machine Intelligence 148 (2017), available at https://ieeexplore.ieee.org/document/7815403 (last visited March 3, 2019).

[3] Bogan, Miranda and Rieke, Aaron, "Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias," Upturn (Dec., 2018), available at https://www.upturn.org/reports/2018/hiring-algorithms/ (last visited on March 4, 2019).

[3] Bureau of Labor Statistics, "Occupational Outlook Handbook," available at https://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm (last retrieved March 3, 2019).

[4] [4] Stephens-Davidowitz, *Everybody Lies: Big Data, New Data and What the Internet Can Tell Us About Who We Really Are* (2017).

[5] *Id.*

[6] Angwin, Julia, et al., "Machine Bias," ProPublica (May 23, 2016), available at https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing (last visited March 3, 2019).

and the need to have a framework in place that supports its ethical and just use. It illustrates why diverse teams are as important in tech as in any other industry.

As the tech industry is a sector of the labor market that is rapidly increasing in size and influence, it is imperative that it provide significant opportunities for students and workers today and in the future. According to the Bureau of Labor Statistics, an agency within the Department of Labor, computer science jobs are projected to grow 19 percent from 2016 to 2026, much faster than the average for all occupations.[7] There is a huge demand for talent leading to a remarkable opportunity to expand the ranks of people of color and women in the tech industry.[8] As a result, careers related to data science, machine learning, and artificial intelligence offer some of the best opportunities for students.[9] It is difficult to imagine future career paths that would not benefit from an education in collecting, analyzing, summarizing and applying data using computation.

Of course, the ideas of living discrimination free and with equal opportunity are bedrock principles in our society central to social mobility and the American Dream. The elimination of arbitrary barriers based on race, sex, national origin, religion, and disability ensure that hard work matters - that investing in your dreams matters. Diversity and inclusiveness takes us out of our bubbles and destroys stereotypes. It is the right thing to do. Diversity and inclusiveness is good business that could only benefit, not hinder, the tech industry.

2. **When tech companies fail to diversify their leadership and workforce, does that affect their likelihood of success?**

Yes. To further flesh out the answer to number 1, tech companies that operate in a bubble lose out on the benefits diversity brings to the decision-making process. As discussed in my written testimony, it is well established that racial, gender and other types of diversity in the workplace has a positive influence on teams.[10] Teams that are made up of individuals of diverse backgrounds are more innovative and generally make more error-free decisions.[11] These benefits are particularly relevant in the science, technology, engineering, and mathematics (STEM) fields.[12] Further, there is convincing evidence that increasing diversity in the workplace leads to both higher revenues and increases in innovation. One important study shows that ethnically diverse companies are 35% more likely to outperform their less ethnically diverse competitors and gender diverse companies are 15% more likely to outperform their less

[7] Bureau of Labor Statistics, "Occupational Outlook Handbook," available at https://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm (last retrieved March 3, 2019).
[8] EEOC, "Special Reports, Diversity in High Tech," available at:
https://www.eeoc.gov/eeoc/statistics/reports/hightech/ (last retrieved March 3, 2019).
[9] Chin, "AI Is the Future—But Where Are the Women?," Wired (Aug. 17, 2018), available at:
https://www.wired.com/story/artificial-intelligence-researchers-gender-imbalance/ (last visited March 3, 2019).
[10] Hunt, Laton and Prince, "Why diversity matters," McKinsey & Company Jan, 2015), available at:
https://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters (last visited March 3, 2019).
[11] *Id.*
[12] Godsil, Rachel, "Why Race Matters in Physics Class," 64 UCLA L. Rev. Disc. 40 (2016), available at:
https://www.uclalawreview.org/race-matters-physics-class/ (last visited March 3, 2019).

gender diverse competitors.[13]   Despite this evidence, white men continue to be overrepresented in the technology industry at greater rates than the private sector as a whole.[14]

3. A recent study showed that underrepresented men and women of color are most likely to leave tech jobs due to unfairness. How can companies in the tech sector change their workplace culture to foster an environment that allows their minority employees to thrive?

It is correct that employee happiness and a sense of fairness are key determinants for retaining talented employees. This is acutely so for diverse employees. A recent national study examined why employees voluntarily leave their jobs in tech.[15] Tech employees from all backgrounds said that their perception of unfairness was the most important factor that drove them to leave a position.[16] The perception of unfairness speaks directly to the culture of the organization. Turnover in any workplace affects the bottom-line but turnover due to perceived unfairness in tech costs the industry $16 billion a year.[17]   This factor of perceived unfairness as the impetus for leaving a job was even more profound in minorities and women.

- Underrepresented men of color were most likely to leave due to unfairness (40%);

- Women of all backgrounds experienced and saw considerably more unfair treatment overall than men;

- Unfairness is most prominent in the tech industry: employees in tech companies were considerably more likely to leave due to unfairness than technical employees in other industries (42% vs. 32%). [18]

As also set forth in my written testimony, unfairness in the workplace, even if indirect, will make employees feel unwelcome. A former employee of Google, who is an advocate for the underrepresented, describes her reasons for leaving Google after eleven years as tied into multiple factors of unfairness.[19] She describes a pattern at Google where "management would overstep, rank and file workers would point out how to avoid harm to users, and we'd have a constructive internal dialogue about how to proceed."[20]   In addition, she felt she was not promoted in a way that was consistent with her responsibilities. She also describes an escalation

[13] Hunt, Laton and Prince, "Why diversity matters," McKinsey & Company Jan, 2015), available at https://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters (last visited March 3, 2019).
[14] *Id.*
[15] Kapor Center, The 2017 Tech Leavers Study, available at https://www.kaporcenter.org/the-2017-tech-leavers-study/ (last visited March 3, 2019).
[16] *Id.*
[17] *Id.*
[18] Kapor Center, The 2017 Tech Leavers Study, available at https://www.kaporcenter.org/the-2017-tech-leavers-study/ (last visited March 3, 2019).
[19] Fong-Jones, Liz, "Google Workers Lost a Leader, But the Fight Will Continue," Medium (Feb. 13, 2019) available at https://medium.com/s/story/google-workers-lost-a-leader-but-the-fight-will-continue-c487aa5fd2ba (last retrieved March 4, 2019).
[20] *Id.*

of harassment, doxxing, and hate speech in Google internal communications that were silently tolerated.[21]

As discussed in my written testimony, there are several steps employers can take to foster an environment of inclusiveness and genuine opportunity. Yes, there is much to do on issues of infrastructure to ensure a diverse pipeline into high tech and develop the next generation of tech entrepreneurs, engineers, and employees to tackle amazingly complex work with serious attentiveness to the values of fairness, opportunity, privacy, and competition. At the same time, the need to develop the pipeline must not be an excuse for companies to ignore the critical need for companies to act now on issues of opportunity and fairness.

First, embedding equality into the core values of a company, means ensuring employment practices, from recruitment to hiring and promotion, reinforce this value. This always starts with leadership at the top. Assess current obstacles. Often barriers can be subtle, so it is essential to collect and analyze data to see if seemingly neutral policies may disadvantage certain demographic groups. Be willing to rethink how the company works to increase flexibility, invest in skill development to ensure pathways to advancement, and create mentoring, sponsorship, and support networks.

What leads employees to believe that they can be successful in advancing to the highest levels of an organization? Research shows that it is workplace culture and practices. Does the company authentically value diversity? Does maternity leave undermine advancement? Are different leadership styles embraced? These external factors at a company weigh twice as heavily in a woman's confidence she will reach top management, compared to individual initiative, such as communicating one's own ambitions, asking for promotions, and seeking out opportunities.[22]

Organizational leadership matters. When organizational leaders create systems for hiring, setting pay, or promotions that focus managers on the job-related skills and behaviors needed for success, they ensure all talent is used fully. Corporate diversity task forces can also be used to promote social accountability. These task forces would be comprised of department heads and members of different minorities and they would be tasked with promoting events to bring awareness to diversity and inclusion in the workplace, engaging teams in diversity and inclusion conversation, and reviewing and proposing policies and procedures to promote workplace diversity and inclusion.[23]

Research shows that team diversity leads to greater innovation and better decision-making. Studies have also established a correlation to stronger company performance. Female directors change boardroom conversations in other important ways. A Harvard survey found they are more likely than their male counterparts to say that social issues such as human rights (38% vs. 25%), climate change (27% vs. 13%), and income equality (22% vs. 14%) should play a role

[21] *Id.*

[22] Dwyer Gunn, "These five tech companies are trying to solve Silicon Valley's diversity problem," The Guardian, Jun 6, 2016, available: https://www.theguardian.com/sustainable-business/2016/jun/06/silicon-valley-diversity-problem-tech-industry-solutions.

[23] Andrea K. Douglas, *Diversity in Tech, What Employers Can Do Now,* The National Law Review, June 1, 2018, available at https://www.natlawreview.com/article/diversity-tech-what-employers-can-do-now.

in corporate strategy.[24] Female directors may also be better positioned to reflect the views of the women who make up a large percentage of customers, shareholders and employees.[25]

Additionally, organizations should cast a wide net in the search for talent. Many top companies now hire from only certain select universities, and are tapping into only 1% of the talent pool. Many students who may not have the "perfect" resume from a top university, have overcome significant obstacles and have the grit and experience to contribute great value.

Notably, female and non-white directors now joining corporate boards have notably different backgrounds than their white male peers. They are more likely to be serving for the first time and less likely to be current or former CEOs. New women directors tend to have more finance, technology and consumer experience than male directors, according to Spencer Stuart's 2018 Board Index.[26] To recruit more diverse candidates, boards have had to cast a wider net and focus on skills and experience rather than the titles candidates have held.[27]

Look also at whether your hiring practices create opportunities for workers with disabilities as well as older workers. Think of how subjective and informal networks create opportunities for hire and advancement, and evaluate whether these networks might work against underrepresented communities without the same access.

Companies should consider providing training to improve employees' attitudes toward diversity. Perspective-taking exercises, for example, ask participants to mentally walk in somebody else's shoes. Goal adapting exercises ask participants to set specific goals related to diversity in the workplace like challenging inappropriate comments that are overheard and response training for such incidents.[28] Companies should also create formalized mentoring programs can provide a mechanism for managers to work directly with an assigned employee which can help minorities who may need greater assistance finding a mentor.[29]

Last, companies should evaluate whether the benefits appeal to all demographic groups. Perks like free dinner might be appealing for a young single person, but a parent who prioritizes meals at home may place greater emphasis on retirement savings options. Do parental leave policies allow both women and men to take the same amount of time off to bond with a new child? Are leave and telework policies in place to support parents, other caregivers, as well as people with disabilities?

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[24] Paula Loop, Paul DeNicola, *You've Committed to Increasing Gender Diversity on Your Board. Here's How to Make it Happen,* Harvard Business Review, available at https://hbr.org/2019/02/youve-committed-to-increasing-gender-diversity-on-your-board-heres-how-to-make-it-happen.
[25] *Id.*
[26] *Id.*
[27] *Id.*
[28] Andrea K. Douglas, *Diversity in Tech, What Employers Can Do Now,* The National Law Review, June 1, 2018, available at https://www.natlawreview.com/article/diversity-tech-what-employers-can-do-now.
[29] *Id.*

4. **What role does implicit bias play in shaping the culture of tech companies? How does implicit bias affect the likelihood of advancement for minority employees in the tech sector?**

Despite many large tech companies actively trying to increase the diversity of their workforce, there are still factors at play leading to sub-optimal results that need to be discovered and ameliorated. Most of the factors identified so far that help with understanding why lack of diversity remains a problem point to the problem of the less conscious type of bias, "implicit bias" in the hiring and employment context.

The science of implicit bias is recognized as the automatic associations of stereotypes or attitudes about particular groups. In our current society where overt efforts have been made to eliminate more obvious forms of discrimination, implicit bias has emerged in the public discourse to explain more subtle types of discrimination. People can have conscious values that are still betrayed by their implicit biases. Implicit biases are frequently better at predicting discriminatory behavior than people's conscious values and intentions.[30] One study demonstrated implicit bias by showing that resumes with more "White" names received requests for interviews 50% more frequently that the same resume with a more "African-American" name.[31] Continued implicit bias offers one explanation for the continued lack of diversity in many high-tech companies despite their attempts to increase diversity.

Additionally, a number of recent studies suggest that isolation and bias influence women leaving STEM careers. Often, it is not simply the choices that employees make that influence career advancement, but it is the workplace environment that drives access to opportunity. Training and awareness about the role of implicit bias can be an important first step. But more needs to be done. It cannot be a one-off. Efforts to advance diversity cannot be just a check box for legal compliance – equality must be a fundamental value of the organization. To have a tangible impact in expanding opportunity, it takes leadership and a coherent series of actions and systems to drive inclusive behaviors. And we see the most progress when there is leadership diversity as well as a commitment to hiring from a broad range of backgrounds.

The following are some ways to reduce implicit bias in the workplace. Employers should try to standardize the interview process and minimize bias by employing, for example, interview scorecards that grade candidates' responses to each question on a predetermined scale.[32] Structured interviews where each candidate is asked the same set of defined questions helps to minimize bias by focusing on the factors that impact performance.[33] Employers can also give work sample tests to mimic the kinds of tasks that candidates will be doing as this would be the

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[30] Godsil, Rachel et. al,, ADDRESSING IMPLICIT BIAS, RACIAL ANXIETY, AND STEREOTYPE THREAT IN EDUCATION AND HEALTH CARE, THE SCIENCE OF EQUALITY, VOLUME 1 (Nov. 2014) , available at http://perception.org/wp-content/uploads/2014/11/Science-of-Equality.pdf (last visited March 3, 2019).
[31] Bertrand and Mullainathan, "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination," 94 The American Economic Review 991 (Sep., 2004), available at https://www2.econ.iastate.edu/classes/econ321/orazem/bertrand_emily.pdf (last visited March 3, 2019).
[32] Iris Bohnet, "How to Take the Bias Out of Interviews," Harvard Business Review, April 18, 2016, available at: https://hbr.org/2016/04/how-to-take-the-bias-out-of-interviews?utm_campaign=harvardbiz&utm_source=twitter&utm_medium=social.
[33] *Id.*

best indicator of future job performance.[34] Using a blind, systematic process for reviewing applications and resumes that perhaps hides names, could also help in finding the best candidates without the implicit bias that comes associated with names or last names.[35] Lastly, companies should set out diversity goals and at the end of every hiring process, they should track and assess how well they have performed in their effort to reach these goals.[36]

It is important to recall bias often occurs along a spectrum and, not a day passes without the smart phone documenting some other racist rant going viral with the help of social media. As civil rights practitioners know, this raises questions as to where an act may fall on the spectrum of unconscious bias to overt but unspoken discrimination and stereotypes. These data points open the door for a broader, sometimes difficult, discussion about the critical steps we should take as a society to counter harmful and hateful stereotypes, overt and unconscious.

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[34] John Bateson, Jochen Wirtz, Eugene Burke, and Carly Vaughan, When Hiring, First Test, and Then Interview, Harvard Business Review, Nov. 2013, available at: https://hbr.org/2013/11/when-hiring-first-test-and-then-interview.

[35] Jack B. Soll, kathering L. Milkman, and John W. Payne, "Outsmart Your Own Biases," Harvard Business Review, May 2015, available at https://hbr.org/2015/05/outsmart-your-own-biases.

[36] Rebecca Knight, "7 Practical Ways to Reduce Bias in Your Hiring Process," Harvard Business Review, June 12, 2017, available at https://hbr.org/2017/06/7-practical-ways-to-reduce-bias-in-your-hiring-process.