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House Committee on Science, Space, and Technology
Achieving the Promise of a Diverse STEM Workforce
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Chairwoman Johnson, Ranking Member Lucas, and distinguished Members of the Committee, thank you for inviting me to be here with you this morning.

I am Barbara Whye, Chief Diversity and Inclusion Officer and Vice President of Human Resources, at Intel Corporation where I have served in my current role since 2016. I joined Intel in 1995 as an electrical engineer. My path to engineering was made possible because of my parents, both products of the segregated south, who were denied both the access and opportunity to complete even a high school education. Yet, they valued education and insisted that their children prioritize education in all we do. Being the eighth of eight children, my older siblings chose math and sciences and I followed their lead.

Intel is a leader in the semiconductor industry, shaping the data-centric future with computing and communications. The company's engineering expertise is helping address the world's greatest challenges as well as helping secure, power, and connect billions of devices and the infrastructure of the smart, connected world – from the cloud to the network to the edge and everything in between. We make things possible and we do that through our people.

Diversity in the STEM Workforce Matters

We live in an intelligent and rapidly evolving world where diversity, inclusion, and racial equity practices must be a core aspect of shaping business practices, product development, tech innovation, and company success.

Intel's commitment to diversity comes from our conviction that reaching—and surpassing—a critical mass of women and underrepresented minorities (URM) in our workforce brings ample benefits. Our CEO, Bob Swan, leads our commitment to diversity and inclusion, and participates in Intel's formalized diversity executive committee monthly meetings to ensure roadblocks are removed as he would with any other key Intel business objective. During these meetings, we review our progress to key goals and work in collaboration across the corporation to execute.

As a company, we are committed to developing solutions to advance diversity and inclusion not only at Intel but across the technology industry. We realize the technology industry will excel when we appropriately value and collectively focus on the full pool of available talent.

Improving ethnic and gender diversity in the U.S. technology workforce represents an economic opportunity that could create \$470B to \$570B in new value for the technology industry and could add 1.2%-1.6% to the national GDP. Research reveals that if two companies are identical in every way except for racial and ethnic diversity and female representation in leadership, the more diverse company will, in all likelihood, have higher revenues, be more profitable, and have a higher market value.¹

Thus, access to a diverse slate of talent is imperative to continue Intel's growth and impact on the industry and the economy.

Efforts to Increase Representation of Women and People of Color in Our Workforce

In January 2015, Intel set a bold goal to reach full market representation of women and URM in our U.S. workforce by 2020. We committed \$300 million to support work internally and the broader goal of improving diversity and inclusion in the entire technology industry. We believe that diverse and inclusive teams with different perspectives, experiences, and ideas are more creative and

¹ Decoding Diversity: The Financial and Economic Returns to Diversity in Tech, June 23, 2016, <https://www.intel.com/content/dam/www/public/us/en/documents/reports/decoding-diversity-report.pdf>.

innovative.² And a diverse workforce and inclusive culture are key to Intel's evolution and driving forces of our growth. It is not only the right thing to do but also a business imperative.

Because of our commitment to setting specific goals and accountability metrics across the company, in 2018, Intel achieved full market representation in our U.S. workforce, two years ahead of schedule.³ The company's workforce now reflects the percent of women and URM available in the skilled labor market in the U.S. This achievement was the result of a comprehensive strategy that focused on hiring, retention, and progression.

Reaching full representation in Intel's U.S. workforce is a testament to the hard work of our employees as well as the investments we have made in people, our partners, and communities around the world. But there is still work to be done. It is not enough to SAY work needs to be done, as a company we need to go "under the hood" and start to systematically address the issues we face in the workplace.

We started on this journey by assessing the available talent in the pipeline, recruiting from a larger pool of universities that graduate diverse talent, and investing in transformational education solutions.

Starting with 2014 data as a baseline, we identified the gaps in our workforce, created customized playbooks, for each business unit (based on data), and assigned accountability metrics to close the gaps.

An in depth look at the company's hiring practices afforded another opportunity to accelerate hiring and retain talent. By using an inclusive hiring methodology, intentional focus was placed on the systems to ensure all jobs are posted, a diverse slate of candidates are available to apply, and a diverse slate of managers are interviewing top talent.

There is a saying that "like, likes, like"...in business that translates to "like hires, like," or the proverbial tap on the shoulder. To go a little further, if there is no system of accountability, "like progresses likes." By making changes in the system, our teams are working to ensure all current and

² Intel CEO Outlines Future of Computing, Jan. 6, 2015, <https://newsroom.intel.com/news-releases/intel-ceo-outlines-future-of-computing/>.

³ Intel 2018 Diversity and Inclusion Report, Oct. 29, 2018, <https://www.intel.com/content/dam/www/public/us/en/documents/corporate-information/2018-annual-diversity-and-inclusion-data-addendum.pdf>. A copy of the report is attached.

potential talent has a level playing field to compete. Silicon Valley is a prime example of a predominately homogenous work culture. We are working to shift the culture.

Through these efforts, Intel's global workforce is currently comprised of approximately 107,000 employees, with about 55,000 in the U.S. Our workforce representation is 26.8% female, 9.2% Hispanic, 4.6% African American, and 0.7% Native American.⁴

The scope of Intel's efforts go beyond hiring and retention to include the entire value chain, from spending with diverse suppliers, diversifying our venture portfolio, to transformational education solutions. The importance of this work is embedded in our business as evidenced by including this work as a business goal in the company's strategy and as a part of the annual performance bonus structure.

Intel's Best Practices: Challenges, Lessons Learned, and Successes

It is critical to understand that this work is a journey and there is no one way to solve the problem. The key is taking action; we must stop admiring the problem. Industry collaboration, innovative solutions, and the ability to adapt when needed is imperative to move forward.

Lack of inclusion and belonging in the workplace, access to progression, and leadership representation continue to be major gaps.

Hiring top talent is not enough; creating an environment where talent can thrive and progress is critical. Connecting employees through forums, groups, training, and events has been a longstanding hallmark of Intel's workplace culture. These and other resources allow employees to cultivate tools to navigate Intel more quickly, and for those who still need support, Intel implemented a confidential service to focus on retention of our workforce.

In 2016, Intel developed and launched the "Warmline" for our U.S. employee base. The warmline is a confidential service that helps employees work through professional roadblocks and improve overall employee experience at Intel. Internal research revealed that employees mull over several factors before deciding to leave the company. Intercepting employees at the critical point when they

⁴ Intel 2018 Diversity and Inclusion Report, Oct. 29, 2018, <https://www.intel.com/content/dam/www/public/us/en/documents/corporate-information/2018-annual-diversity-and-inclusion-data-addendum.pdf>.

are making a decision to leave gives Intel an opportunity to address concerns and resolve issues resulting in the retention of key talent.

To date the warmline has received over 20,000 cases and case managers have achieved an 81% retention rate. One employee left the following anonymous comment: *“I cared about Intel and didn’t want to just throw it away. The fact that somebody cared and said, ‘Don’t leave Intel,’ meant so much to me.”* We hire the best talent, enact solutions to retain the best talent, but we recognize that without growth and progression, we will lose great talent.

It is not enough to have representation in the company if representation does not exist in leadership and key roles up to and including the board of directors. Leaders control and progress employees, and systematically set the direction. Confronting the challenge of diversity in the technology sector requires an honest reckoning with American life.

At the heart of the diversity and inclusion work is asking people behaviorally to acknowledge and effectively manage their biases against women and URM, both implicit and explicit that have developed over a lifetime of segregated living, false narratives, and inequality in education. Diversity and inclusion work requires addressing the individuals views on hiring, progression, and retention, and ensuring that the value placed on one group’s competencies and intellect is not devalued because of the hue or color or gender one lives in.

Achieving leadership representation for underrepresented minority groups is the next step on our journey. There is currently a 10% gap in our leadership representation for women and that gap widens when we include people of color.

We still need to work with managers to identify succession plans that include a diverse set of employees, ensuring that women and people of color have the opportunity to participate in key projects, and sponsorship opportunities.

Growing the STEM Education Talent Pool: Investment and Recruitment⁵

If we want to shape the future of technology, we must be representative of that future.

⁵ Although we often refer to STEM, we need to broaden the education focus to include Arts, to capture the creativity and critical thinking skills essential to architecture, design, and entrepreneurship. The STEAM Caucus, co-founded by Representative Suzanne Bonamici (OR-1), leads Congress on this concept and we are supportive of its efforts.

There is not a talent shortage but rather access and opportunity shortage. The Intel STEM Education Strategy is rooted in going to where the talent is and investing in the next generation of talent.

A few of the programs Intel is currently investing based on workforce data gaps include:

- **Oakland Unified School District (OUSD):** Intel entered into a \$5 million partnership to strengthen the computer science and engineering pathway curriculum at two of OUSD's high schools. The comprehensive approach focuses on students, teachers, parents, and the community. In this program, students enrolled in Computer Science classes grew from 196 in 2015 to 2800 in 2017. Students enrolled in AP Computer Science went from 24 in 2015 to 416 in 2017. URM students enrolled in Computer Science grew from 127 in 2015 to 1933 in 2017, while females climbed from 47 in 2015 to 1238 in 2017.⁶
- **HBCU Grant partnership:** Intel committed to a three-year, \$4.5 million program to encourage students to remain in STEM pathways at six historically black colleges and universities (HBCUs), including Florida A&M University, Morgan State University, Howard University, Prairie View A&M University, North Carolina A&T State University, and Tuskegee University. Intel has tailored an individualized partnership with each university based on a co-design with each HBCU and is focused on meeting each HBCU's individual needs, including scholarships, curriculum support/course development for professors, and tech industry workshops.⁷⁸
- **Reboot Representation:** Intel supports and is a founding member of the Reboot Representation Tech Coalition, an initiative spearheaded by Melinda Gates' investment and incubation company, Pivotal Ventures. The coalition will align existing philanthropic donations and increase funding to double the number of women of color graduating with computing degrees in the U.S. by 2025.⁹

⁶ With Intel's STEM Support, High School in Oakland, California, Reaches Graduation Milestone, <https://www.youtube.com/watch?v=6Jn3Rapidqs&t=67s>.

⁷ New Intel Grant Program Invests \$4.5 Million to Support STEM Pathways for HBCU Students, June 27, 2017, <https://blogs.intel.com/csr/2017/06/new-intel-grant-program-for-hbcu-students/>.

⁸ I would like to personally thank Representative Alma Adams (NC-12) and her team for their leadership work with HBCU's through the Bipartisan HBCU caucus and the HBCU Partnership Challenge. Intel was the first company to accept the challenge, focused on providing greater resources for HBCU's, strengthening public/private partnerships, and supporting a commitment to educational excellence.

⁹ Closing the Gender Gap in the Tech Sector, <https://www.rebootrepresentation.org/>.

- **AISES/Intel Growing the Legacy Program:** As part of a partnership between Intel and the American Indian Science and Engineering Society (AISES) to create pathways for Native American students, Intel contributed \$1.32 million to AISES’ “Growing the Legacy” scholarship program for Native American undergraduate and graduate students. This initiative supports Native American university students every year for four years by providing financial support, Intel mentors, and opportunities for paid internships and/or jobs at Intel upon graduation.¹⁰
- **Tech Learning Lab:** Intel is addressing the needs of educators through advanced technology that enables effective and dynamic classroom experiences and drives students’ skills development to prepare them for the demands of the future workforce. The Tech Learning Lab is a custom-built mobile container truck, outfitted with VR demo stations, education PCs and IoT (Internet of things) smart whiteboards that are accompanied by immersive, hands-on workshops. The tour is designed to engage with educators and spark conversations that go beyond the classroom to fuel curiosity about the role of technology and its impact on our world and daily lives.¹¹
- **Intel® Future Skills:** The rapid pace of technological advancement is fundamentally changing the skills needed for the jobs of the future. To address these changes, the Intel Foundation launched the Intel® Future Skills Program, a scalable approach to develop globally competitive learners. Intel collaborates with governments, educators, and community-based organizations to empower youth to reach their full potential, become innovation ready, and prepared for roles in technology. The Future Skills program builds upon a research-based methodology, introducing essential skills and computational learning for youth with no prior technical training, so far reaching ~1200 students in the United States across seven states.¹²

Moving Forward: STEM Opportunities Act

I applaud the Chairwoman for her introduction of the STEM Opportunities Act. The legislation would implement best practices at Federal science agencies and at institutions of higher education to

¹⁰ Intel’s Growing the Legacy Program, <http://www.aises.org/content/intel-growing-the-legacy>.

¹¹ Intel Tech Learning Lab Starts Tour to Shape Education’s Future, Oct. 17, 2018, <https://newsroom.intel.com/news/intel-tech-learning-lab-starts-tour-shape-educations-future/>.

¹² Intel Foundation, <https://www.intel.com/content/www/us/en/corporate-responsibility/intel-foundation.html>.

remove or reduce cultural and institutional barriers limiting the recruitment, retention, and success of underrepresented minority groups in academic and Government STEM research careers. It would provide grants to higher education institutions to recruit, retain, and advance STEM faculty members from underrepresented minority groups. It would also issue grants to implement or expand reforms in undergraduate STEM education in order to increase the number of students from underrepresented minority groups receiving degrees in these fields. These are laudable goals that are focused on increasing the diversity of the STEM talent pool and ensuring inclusion of all Americans to be able to thrive in the new economy.

As you consider reintroducing the legislation this Congress, with the intent on growing the diverse STEM talent pool, I recommend that you take bolder and actionable steps and include language that requires concrete measurable outcomes related to expanding availability and access to STEM offerings for students from pre-K to college, increasing diverse faculty representation, and increasing the employability of students that complete a STEM education. These measurable outcomes are needed to keep the U.S. globally competitive, to move our economy forward, and to generate economic participation and mobility for all.

In your next draft, you should consider requiring the federal government to leverage data and analytics in your reporting systems to give more real-time insights and prescriptive recommendations so that agencies can prioritize their resources on efforts that are showing results and positive impact. Intel and others in the sector could be convened to help formulate solutions that could support the development of a data platform in support of that work. Predictive analytics and quality data matter.

You can hold programs accountable to ensure that students at the most mature stages of the pipeline (graduate level), are just as successful completing their education as those that are beginning and entering the early stages of the K-12 pipeline.

You can ensure that Historically Black Colleges and Hispanic Serving Institutions establish top tier programs in the STEM disciplines.

You can focus on creative programs and collaborations that emphasize hands-on STEM activities and clearly connect technology careers and real-world applications.

And you can authorize more funding toward STEM-based research and faculty programs, especially those targeting underrepresented minority groups.

While outside the scope of this Committee, but an example of available opportunities with pre-existing programs, Congress can encourage the Defense Department to leverage its ROTC program to help build a diverse STEM talent pool. For example, Junior ROTC serves almost 500,000 secondary students, most of whom are underrepresented minorities and economically disadvantaged. The program could add new offerings, such as a cybersecurity credential focused on the critical issue of IT security or an artificial intelligence credential focused on AI, to build out a stronger diverse STEM talent pool.

Conclusion

Thank you for allowing me to share Intel's journey to full workforce representation and providing an opportunity to touch on the importance of Congressional leadership to grow the talent pool of students in STEM. The STEM Opportunities Act is a good start and is a testament to this Committee seeking solutions to support underrepresented minorities and women in STEM.

I would ask this committee to be bold in your actions, set clear and measurable goals, drive transparency, and hold people accountable.

Action is the foundational key to all success- Pablo Picasso