

Before the
United States Patent and Trademark Office
Alexandria, VA

In re

Request for Comments on the National
Strategy for Expanding American Innovation

Docket No. PTO–P–2020–0057

**COMMENTS OF
COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION
AND
HIGH TECH INVENTORS ALLIANCE**

The Computer & Communications Industry (CCIA)¹ and High Tech Inventors Alliance (HTIA)² submit the following comments in response to the U.S. Patent and Trademark Office’s October 20, 2020, Request for Comments.³

CCIA is an international, not-for-profit trade association representing a broad cross section of communications and technology firms. For nearly fifty years, CCIA has promoted open markets, open systems, and open networks. CCIA members employ more than 1.6 million workers, invest more than \$100 billion in research and development, and contribute trillions of dollars in productivity to the global economy. CCIA members are also active participants in the patent system, holding approximately 5% of all active U.S. patents, as well as holding many copyrights and trademarks.

The High Tech Inventors Alliance (HTIA) represents leading technology providers and includes some of the most innovative companies in the world. HTIA exists to promote innovation and American jobs through equitable patent policies and a more efficient, effective, and inclusive patent system. HTIA member companies are some of the world’s largest funders of corporate research and development, collectively investing more than \$140 billion in these activities annually. They are also some of the world’s largest patent owners and have collectively been granted nearly 300,000 patents.

CCIA and HTIA members recognize the importance of the intellectual property system in rewarding innovation. But without an inclusive patent system that ensures that currently under-represented groups are appropriately involved in creating patentable inventions, that system will fail to achieve its full potential.

However, as the questions in the Request themselves indicate, addressing the challenges relating to expanding American innovation requires much more than simply increasing the number of patents issued to women and people of color. The end goal of this effort is to improve

¹ A list of CCIA members is available online at <https://www.ccianet.org/about/members>.

² A list of HTIA members is available online at <https://www.hightechinventors.org>.

³ Request for Comments on the National Strategy for Expanding American Innovation, 85 Fed. Reg. 83906 (Dec. 23, 2020) (hereinafter “Request”).

inclusion in American innovation, including the patent system, not just to increase patent issuance. We need to ensure that under-represented groups are provided the support they need to contribute fully to U.S. innovation, and that their innovation is appropriately recognized through patents and otherwise.

To do that, we must change how we think about innovation and what we teach future generations about innovators. As one commentator recently noted, the “stories people tell about invention in the U.S. continue to focus on white men – the Benjamin Franklins, Thomas Edisons, and Elon Musks – without affording women and people of color the same larger-than-life status.”⁴ Those stories focus on lone individuals, not the teams of Edison lab assistants⁵ or Tesla engineers who are part of that innovation. Edison didn’t test ten thousand materials for filaments—the assistants in his labs did. But when the members of Edison’s labs tried to market their own ideas to potential clients, the clients didn’t want to hear about the team of engineers who developed it—they wanted to hear that Edison was involved.⁶ This bias towards lone inventors may have helped to reduce innovative contributions by under-represented groups, who have historically been denied the privileges and social status required to achieve the same level of public recognition and support.⁷

Lacking this social status and privilege, historical women innovators, innovators of color, and innovators from other under-represented groups are also often erased from the historical record, ensuring that the focus remains on lone white men.⁸ These “hidden figures”⁹ have gone unrecognized for far too long, reducing incentives to engage in and promote these types of innovation. While some of their stories are now receiving recognition, how many unknown figures were never given the opportunity to innovate because their innovations were not of the lone inventor type that we value? Ensuring that innovators from under-represented groups receive the necessary support is essential to ensuring that these hidden contributions are brought into the open.

Further, by limiting talk of invention to the mythical lone great inventor, we also dissuade recognition of the innovations created by those who have one good idea or those who work collaboratively. Instead of focusing solely on promoting patents and patent activity, lionizing heroic inventors, we also need to promote forms of innovation that don’t fit neatly into the patent framework. Activities such as collaborative research, open-source or open-science models, and other such forms of innovation are at least as important as patents—and they should receive at

⁴ Anjali Vats, “The iconic American inventor is still a white male — that’s an obstacle to race and gender inclusion”, Salon (Jan. 11, 2021), <https://tinyurl.com/c15qbjwo>.

⁵ David Burkus, *The Truth About Creativity* 108 (2014) (“[Edison] compiled a team of engineers, machinists, and physicists who worked together on many of the inventions we now attribute to Edison alone.”).

⁶ *Id.* at 109.

⁷ Indeed, even black inventors who fit the lone inventor model have been denied their deserved prominence. Lewis Latimer, born in 1848 to runaway enslaved people, created and patented a more durable light bulb filament. His contribution is recognized as the one that made widespread electric lighting not just possible but accessible, affordable, practical, and prevalent. See generally Rayvon Fouchè, *Black Inventors in the Age of Segregation: Granville T. Woods, Lewis H. Latimer, and Shelby J. Davidson* (2003).

⁸ See, e.g., Joshua Landau, “All Hands on Deck: Ensuring Innovation, Not Just Patents, From All”, *Patent Progress* (Jan. 20, 2021) (describing Lewis Latimer’s role in the invention of electric light), <https://tinyurl.com/3g4e2r6s>.

⁹ Margot Lee Shetterly, *Hidden Figures: The American Dream and the Untold Story of the Black Women Who Helped Win The Space Race* (2016).

least as much attention when formulating a National Innovation Strategy. In short, while patents must be innovative, not all innovation must be patented.

Beyond changing how we talk about innovation, we need to change how we recognize and attribute innovation through the grant of patents, including by ensuring that the same biases that historically blocked the recognition of innovators from under-represented groups do not continue to mar the patenting process. Unlike many of the necessary changes, this is something that is directly within the USPTO's authority and control. Issuance should be blind—the race or gender of an inventor (or their attorney) should not affect their ability to receive a patent. Unfortunately, there are studies that suggest that this is not the case.¹⁰ The USPTO should study this issue, including taking the existing studies seriously, and make the results public. The USPTO should also consider a pilot of a random blind examination process where the identity of the inventor and attorney are withheld from the examiner until after the first Office Action.¹¹

But patenting is only one small corner of the much larger and more important tapestry of innovation. Generating more patents won't necessarily produce more actual innovation, and merely helping patent applicants from under-represented backgrounds be treated fairly by the USPTO will not overcome the systemic barriers that reduce the practical ability of under-represented groups to innovate. While patents can provide important incentives to those who already have the resources and privilege to be in a position to engage in innovation, they cannot help an innovator who has been denied the education, work experience, and access to capital that allow potential inventors the practical opportunity to conceive of an invention or to develop an innovation. The Request's comments recognize this, focusing on the broader question of innovation—only one question even uses the word “patents”, and that only in its preface.

To overcome these systemic barriers to innovation, we need to ensure that historically excluded groups have access to the knowledge, resources, and opportunities that will allow them to engage in innovation. This sort of policy, which touches on everything from education to corporate policy to venture capital to social norms, is outside of the scope of the USPTO's responsibilities. While the USPTO should clearly be involved, it lacks the breadth of experience and the subject matter expertise to effectively assess changes in these areas. The National Innovation Strategy should be coordinated by an entity with a broader mandate over science and technology policy, such as the Cabinet-level Office of Science and Technology Policy.

One way in which the USPTO could serve a valuable role is by providing a central repository of tried and tested initiatives used by various firms which could be adapted by other firms to their own situations. CCIA and HTIA members have a number of initiatives aimed at increasing innovation from under-represented groups, some of which are described below.

Our members look forward to assisting the USPTO in promoting a broad national innovation strategy that doesn't focus on the limited question of “how do we issue more patents to applicants from under-represented groups” but instead addresses the broader question of how to ensure that women, people of color, and other under-represented groups are empowered to innovate and that their innovations are fully recognized and rewarded, even if patents aren't involved.

¹⁰ See *infra* Section I.

¹¹ See, e.g., Chien, *Rigorous Policy Pilots the USPTO Could Try*, 104 Iowa L. Rev. Online 1 (2019).

I. Issues in the Patent Examination Process

Patent examination should be an unbiased process, where decisions are based solely on the technical merit of the invention and the race, gender, and other characteristics of the inventor are irrelevant. Unfortunately, there is evidence this is not the case. In particular, a 2018 study published in *Nature Biotechnology* used applicant names as an instrument for detecting gender bias in examination.¹² The study concluded that there was a measurable negative impact on patent grants to individuals with names that are widely associated with women. Names that are nearly exclusively given to women, but which are not widely recognized as gendered, did not exhibit this negative bias, strongly suggesting that it represents an implicit bias against women in the application process. And the separation between common female names and rare female names suggested that approximately two-thirds of this difference was due to biases on the examiner side. The Office has to date failed to investigate or act on the findings in this study without providing any rationale for this inaction. A later study analyzed similar data in the context of both gender and race. The study confirmed the findings with regard to gender biases in examination, but found that, while minority inventors are also disadvantaged with respect to patenting activity, the disadvantage appears to be less clearly associated with the examination process.¹³

It is essential for the Office to provide a public response to these studies that takes seriously the concerns raised and proposes a specific path to address them. This should include reinstating diversity and implicit bias training for examiners and the Office's support for passage of the Inventor Diversity for Economic Advancement (IDEA) Act¹⁴, which would collect enhanced data on applicants that would be useful in this type of analysis. However, we also suggest the creation of a pilot program for blind examination, at least through the time of issuance of a First Office Action.

Such a pilot program would mask inventor, attorney, and applicant names from examiners, requiring them to analyze validity based purely on the specification and claims without access to the types of information that might give rise to unconscious bias. This process would raise several challenges. However, these are challenges the Office is capable of addressing. In particular, masking names creates concerns regarding the ability to address prior art created by the inventive entity¹⁵ which is not available in rejections under the exceptions in 35 U.S.C. § 102(b) and regarding the ability of applicants and attorneys to participate in examiner interviews.

There are several possible ways to eliminate prior art created by the same inventive entity. With respect to the USPTO's databases of prior art, including patents and applications, inventive entities could be assigned a unique identifier. When a new application is filed, the inventive entity would use the previous identifier if that entity has filed an application in the past. The inventive entity would be assigned a new identifier if it is a new entity. When an examiner is searching for prior art, the prior art would display the inventive entity identifier instead of the

¹² Jensen *et al.*, *Gender Differences in obtaining and maintaining patent rights*, 36 NATURE BIOTECH. 307 (2018).

¹³ Schuster *et al.*, *An Empirical Study of Patent Grant Rates as a Function of Race and Gender*, 57 AMER. BUS. L.J. (forthcoming 2021), <https://tinyurl.com/1gbckiym>.

¹⁴ See Inventor Diversity for Economic Advancement Act, H.R. 7890/S. 4394 (116th Cong.)(2020).

¹⁵ Inventive entity here refers to the meaning used in MPEP 2136.04, the set of all inventors. Such a definition effectively implements 35 U.S.C. § 102(a)(2)'s "names another inventor" requirement.

inventors' names. If the identifiers match, the examiner would know it is not available as prior art. Such a system would also have the benefit of reducing any potential tendency of examiners to favor citation to prior art from male inventors.¹⁶ While this would not address citation to other forms of public disclosures, such as web pages, that are not part of the Office's database, examiners primarily utilize patent prior art for rejections. Any citations to other public disclosures by the same inventive entity as the application could be handled by unmasking the applicant, either at their request in order to traverse such rejection or as a default after the First Office Action.

The second difficulty is the inability to maintain a blind examination process while simultaneously permitting applicants and attorneys to participate in examiner interviews. Such interviews are often considered to be a useful tool for moving the examination process forward, as applicants and examiners can discuss the invention and overcome any misunderstandings in real time. This concern could be addressed via a default unmasking after the First Office Action, at which time interviews could be conducted. Recording examiner interviews and making those recordings (and potentially machine transcriptions of the recordings) available as part of the public file would also help to ensure an ability to review examiner conduct for potential issues, as well as improving the ability of the public to understand the scope of the patent through review of the patent file wrapper.

Blind issuance cannot completely address gender and racial disparities in innovation, given that applicant identities would have to be revealed in at least some instances, much less address the fundamental barriers to innovation faced by under-represented groups. However, it would be a significant step forward in addressing those disparities in the area where the Office has the most control—the examination process.

II. Increasing Innovation Requires Increasing the Number of Innovators, Not Just Increasing the Number of Patents Issued

The Office can address issues relating to patent issuance with relative ease. While fixing the examination process would be a step in the right direction, it would be a relatively small one. Mitigating biases within the Office against under-represented groups may slightly increase the grant rate for those inventors, but it cannot close the innovation gap. It cannot address the fact that women and people of color do not receive the same exposure to innovation¹⁷ and do not receive the same level of resources and support.¹⁸ Any program that focuses merely on removing disparities in the proportion of patents issued to women and people of color is likely to fail. It is “inherently difficult—and indeed self-defeating—to impose quantitative targets on ground-breaking innovation,”¹⁹ with such targets leading to gamesmanship rather than innovation. Such targets incentivize attempts to ‘juke the stats.’ If applicants receive incentives to file applications with women and people of color as inventors, they may file repetitive

¹⁶ Shen & Zingg, *Patent Examiners and the Citation Bias in Innovation*, WIAS Discussion Paper No.2020-005 (Nov. 30, 2020), <https://tinyurl.com/47ysatyr>.

¹⁷ Bell *et al.*, *Who Becomes An Inventor In America? The Importance of Exposure to Innovation*, NBER Working Paper 24062 (Nov. 2017), <https://tinyurl.com/3ovmfw0u>.

¹⁸ See, e.g., Kauffman Foundation, *The State of Access to Capital for Entrepreneurs: From Barriers to Potential* (Feb. 5, 2019), <https://tinyurl.com/2kpqbyzv>.

¹⁹ See Testimony of Yuen Yuen Ang before the U.S.-China Economic and Security Review Commission, Hearing on U.S.-China Relations at the Chinese Communist Party's Centennial (Jan. 28, 2021), <https://tinyurl.com/rar2syt8>.

applications and applications on obvious technologies. Indeed, patent filing targets in China appear to be responsible for China's production of an increased number of patents with a lower share of novelty.²⁰ And if the metric is solely based on Office behavior, examiners may feel pressured to ensure that the Office meets its target.²¹

Focusing on patenting, beyond potentially incentivizing gamesmanship, will distract attention from more fundamental causes of innovation disparities and will also fail to promote and recognize areas of innovation that exist outside of patenting. Collaborative research models and traditional knowledge are two areas where a focus on patenting misses important sources of innovation. These areas also tend to include more individuals from under-represented groups. Traditional knowledge tends to be sourced from indigenous peoples and people of lower socio-economic status, while collaborative research models may be more attractive to women and non-binary individuals.²² And a focus on patents "obscures poor peoples' knowledge as raw material, rather than as its own form of intellectual property that is a 'modern, dynamic, scientific, and cultural invention.'"²³ In just one recent example of such treatment, a focus on patents led a sugar engineer to patent a traditional Colombian sweetener, panela.²⁴ Patenting this type of traditional knowledge withdraws from society's benefit innovations that were already disclosed. Ensuring that traditional knowledge is part of an improved understanding of innovation rewards these forms of knowledge, rather than treating them as a raw material that only has value once it has been incorporated into a patent.

Further, a strategy that focuses on patenting activity would forfeit the enormous benefits of improving the inclusivity of innovation systems that do not strongly rely on (or even in some cases actively reject) the patent system. For example, open-source software generally does not rely on patents and typically requires contributors to limit related patent activity to ensure the software remains open. Open-source software, which has been a tremendous source of innovation in the information and communications technology sector,²⁵ shows significant benefits from increased contributor diversity.²⁶ At the same time, open-source software exhibits the same widespread lack of diversity as other areas of STEM.²⁷ An exclusive focus on patents will fail to address parallel issues of underrepresentation and bias in open-source or open-science communities.

²⁰ See Ang *et al.*, *The Limits of State-Led Innovation: Evidence from Chinese Patents*, SSRN (Oct. 17, 2020), <https://tinyurl.com/dij0nbeg>.

²¹ Cf. Wasserman & Frakes, *Does Agency Funding Affect Decisionmaking?: An Empirical Assessment of the PTO's Granting Patterns*, 66 VAND. L. REV. 67 (2013)(describing empirical evidence that examiners change issuance behavior to ensure that the USPTO issues enough patents to meet its required revenue to cover costs, with the result that the agency "is likely to be routinely granting patents on inventions that were either already known or represent only a trivial advancement over the existing scientific knowledge.").

²² Foster, *Situating Feminism, Patent Law, and the Public Domain*, 20 COLUM. J. OF GENDER & L. 261, 334 (2011).

²³ *Id.* at 298.

²⁴ Smith, *Colombians Ask: Who Would Dare Patent Panela?*, New York Times (Jan. 26, 2021), <https://tinyurl.com/4env8q2q>.

²⁵ See, e.g., GNU General Public License V3 Section 11, <https://tinyurl.com/y4633465>; Open Invention Network License Agreement (May 1, 2012), <https://tinyurl.com/2hcyb9qw>.

²⁶ Vasilescu *et al.*, *Gender and Tenure Diversity in GitHub Teams*, CHI 2015: SIGCHI Conference on Human Factors in Computing Systems (Apr. 2015).

²⁷ Asay, *Diversity: Why open source needs to work on it in 2020*, TechRepublic (Jan. 6, 2020), <https://tinyurl.com/89q3muko>.

To truly ensure the expansion of American innovation, under-represented groups must be able to participate in innovative activity to the same extent as any member of American society. And this should be done without limiting the desired increase in innovative activity solely to increases in patenting activity. Relatively few of the changes required to achieve this goal involve the patent system, and the vast majority of them are likely to be in areas that extend beyond the expertise and authority of the Office. Rather than solve only a portion of the problem, we suggest that an agency with a wider scope of operation should take the lead on this issue, while incorporating input from the Office on issues of intellectual property where the Office has useful expertise. The most natural entity to take the lead would appear to be the Cabinet-level Office of Science and Technology Policy (OSTP) and CCIA and HTIA suggest that the USPTO work with OSTP to transfer overall coordination on this issue to OSTP while the USPTO continues to address patent-specific issues.

III. Successful Initiatives for Improving Innovation Should Be Publicized and Replicated

In addition to supporting efforts at OSTP, the Office could collect and make available exemplary initiatives that support diversity and equity in innovation. CCIA and HTIA members have a number of such initiatives, some of which are summarized below. By collecting and publicizing these types of initiatives, firms that wish to help support diversity and equity in innovation can be provided with a starting point they can adapt to their own areas of technology, rather than being forced to start from scratch. Much like the disclosure function of patents, having a publicly available database of prior art initiatives will help provide a starting point for the task of increasing the diversity of future innovators.

A. Cisco

Cisco has committed to a full slate of social justice initiatives to grow and produce an inclusive future in technology.²⁸ This commitment begins within with the expansion of representation across the full spectrum of diversity at every level within the company, including on its Board of Directors. These actions will provide greater exposure for and of existing diverse talent in the technology industry.

Cisco has also launched an internal program to mentor diverse innovators which may lead to greater patenting opportunities, especially for its African-American employee pool. Cisco is increasing the number of diverse technology companies in its partner ecosystem, as well, with the goal of promoting the financial growth and opportunities for these partners.

Through its nationwide Networking Academy student mentorship program, Cisco will provide foundational skills for young, underrepresented populations to excel in innovation. Cisco has also committed to launch a \$50M venture investment fund (the “Aspire Fund”) to make investments in Venture Funds and Startups with diverse founders and leadership teams.

B. Dell

Dell has begun to provide an annual diversity and inclusion report, which contains details of its efforts.²⁹ Dell has established a set of inclusion goals to be achieved by 2030, including

²⁸ See Cisco, *Social Justice Beliefs and Actions* (last visited Feb. 23, 2021), <https://tinyurl.com/e7jdk5b>.

²⁹ See Dell, *Dell Technologies 2020 Diversity & Inclusion Report* (2020), <https://tinyurl.com/pr65cxj>.

increasing the share of women, Black, and Latino employees in both its workforce and in leadership. Alongside this, 95% of employees will participate in annual foundational learning on topics like unconscious bias, harassment, and privilege. These goals are supported by a range of initiatives designed to help under-represented groups advance their careers at Dell and in the STEM field.

To help increase the presence of under-represented groups in leadership, Dell created the Diversity Leadership Accelerator Program, a nine-month partnership of achievement and advocacy where external coaches and internal sponsors support female midlevel managers. This initiative will help high-performing women advance their careers at Dell. Dell also helped form the Women in Technology Consortium, which develops scalable solutions that foster more women graduating with STEM degrees, and has continued to sponsor the Hispanic Association on Corporate Responsibility and its mission to advance the inclusion of Hispanics in corporate America.

To create a wider innovation pipeline for under-represented groups, Dell has partnered with historically black colleges and universities through Project Immersion to help STEM students at these institutions develop the technical and professional skills required to succeed in the digital future. Dell also worked with Northeastern University in its Align program, designed to help individuals from non-technical backgrounds pursue a master's degree in computer science, with a strong emphasis on women and under-represented minorities.

C. Facebook

Facebook has implemented internal and external initiatives aimed at addressing problems with diversity in innovation. Working with the Intellectual Property Owner's Association (IPO), Facebook implemented the Gender Diversity Toolkit and shared its experience with other IPO members.³⁰

Internally, Facebook highlights inventors from under-represented groups to encourage other women, minorities, and veterans to join the inventor community. Facebook is also surveying under-represented groups at Facebook to better understand what barriers, obstacles, and biases those groups face that block them from innovating. These efforts are paired with internal publicizing of the patent program and brainstorming sessions specifically designed to help bring forward innovative contributions from under-represented inventors.

Externally, Facebook has testified to the USPTO on diversity issues as part of the SUCCESS Act study,³¹ as well as hosting workshops for women entrepreneurs providing advice on IP and business law issues. Facebook is also collaborating with researchers and universities to understand the causes of the lack of diverse representation in innovation, understand how under-represented groups innovate, and to determine appropriate metrics for measuring diversity in innovation.

D. Google

Google has created initiatives designed to increase both diversity in patent activity and in broader innovative activity.

³⁰ IPO, *Gender Diversity in Innovation Toolkit* (2020), <https://tinyurl.com/ur96zjgy>.

³¹ Facebook, Written Testimony for "Study of Underrepresented Classes Chasing Engineering and Science" (SUCCESS) Act, 3rd Public Hearing (June 3, 2019), <https://tinyurl.com/v6x619lk>.

In the patent space, Google conducts targeted outreach and training to employee resource groups designed to help innovators at Google understand the process for obtaining a patent and the benefits of obtaining a patent. Peer support programs partner experienced inventors with new inventors, helping them navigate internal patenting processes and advising on how to draft invention disclosures. And first-time applicants are provided with additional support from patent attorneys to help guide them through the unfamiliar process.

Google offers a number of programs that help to prepare people to obtain the skills and develop the interests needed to enter into computer science careers. Two of those programs are Code Next and Tech Exchange.

Code Next is a free computer science education program that meets Black and Latinx high school students in their own communities and provides the skills and inspiration they need for long and rewarding careers in computer science-related fields. Code Next currently has three community based labs and its first cohort of students graduated in June of 2020, with 88% deciding to major in STEM in higher education.

For students who live outside of Code Next lab cities, Google recently launched the Code Next Connect program, an online program for high school students across the United States. To learn more about Code Next Connect programs, check out the application FAQs.

Tech Exchange is a semester-long program for Historically Black Colleges and Universities (HBCUs) and Hispanic-Serving Institutions (HSIs) where computer science majors immerse themselves in coding instruction, product management, and user interface design, co-taught by Google employees.

E. Intel

Intel supports a wide variety of initiatives that promote diversity and equity in innovation. In addition to Intel's commitment to releasing its Equal Employment Opportunity data each year, Intel has a number of programs that aim to increase the accessibility of STEM education to traditionally under-represented groups. Examples include the JROTC STEM program and Intel's AI Skills program in association with community colleges.

In the JROTC STEM program, Intel has partnered with the Department of Defense to provide support for training in computer science and cybersecurity for JROTC cadets.³² Many cadets are underrepresented minorities and over 40% of cadets are female. By providing cadets with education in these areas, the JROTC STEM program helps cadets overcome institutional barriers to entry in STEM fields and prepare for careers in one of the fastest growing areas of the U.S. economy.

Intel's AI Skills program implements a comprehensive program to train secondary education students in AI-related skills. Intel launched the program in 2020 in partnership with Maricopa County Community College,³³ and is expanding AI Skills to other community colleges across the country. The program is targeted at community colleges in order to provide access to AI training outside of the traditional four-year college environment, reaching a wider range of Americans. The program is designed to teach students foundational AI skills, with an aim of

³² See Barbara Whye, TechPolicy@Intel, *PROMOTES Act is Essential to Giving STEM Access to Diverse Talent and Should Be Included in the NDAA* (Aug. 12, 2020), <https://tinyurl.com/1nlhx0db>.

³³ Intel Newsroom, *Intel Launches First Artificial Intelligence Associate Degree Program* (June 25, 2020), <https://tinyurl.com/y7cm7819>.

ultimately producing capstone projects demonstrating the application of AI tools to industry or social problems.

By educating JROTC cadets and community college students, Intel's efforts increase STEM education accessibility for underrepresented groups, helping to widen the pool of innovators and create new innovations.

IV. Conclusion

CCIA and HTIA believe that increasing diversity and equity in innovation is essential to maintaining a just and equal society and to increasing innovation to the benefit of society as a whole. However, that requires more than simply attempting to increase the number of patents issued to individuals from under-represented groups. By changing how we discuss innovation, avoiding a focus solely on patents, and recognizing broader forms of innovation than the narrow, traditional conception of invention, we can avoid "lost Einsteins." And by continuing to pursue efforts to increase the accessibility of innovation to traditionally under-represented groups, we can ensure that these benefits inure to everyone, not just to the traditional beneficiaries.

CCIA, HTIA, and our members stand ready to assist the Office with these critically important issues.

Respectfully submitted,

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